

FLIGHT

The
AIRCRAFT
ENGINEER
&
AIRSHIPS

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Founder and Editor : STANLEY SPOONER

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"FLIGHT" PHOTOGRAPHS.

To those desirous of obtaining copies of "Flight" Photographs, these can be supplied, enlarged or otherwise, upon application to Photo. Department, 36, Great Queen Street, W.C.2

DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list:—

1927

- Feb. 10 ... "Flying for Air Survey Photography." Capt. F. Tymms, before Inst.Ae.E.
- Feb. 17 ... "The Design and Operation of Commercial Aircraft." Major R. H. Mayo, before R.Ae.S.
- Feb. 19 ... R.A.F. v. Navy, Rugby Match, Twickenham.
- Feb. 22 ... "Aviation in Australia," Flt.-Lt. J. Renison Bell (R.A.A.F.) before Inst.Ae.E.
- Mar. 3 ... "The Spinning of Aeroplanes." Mr. L. W. Bryant, before R.Ae.S.
- Mar. 8 ... "Portable Hangars." Major H. N. Wyllie, before Inst. Ae.E.
- Mar. 16 ... Inst. Ae.E. Visit to the Factory of A.D.C. Aircraft, Ltd., Waddon.
- Mar. 17 ... "Line Squalls." Mr. M. A. Giblett, M.Sc., before R.Ae.S.

EDITORIAL COMMENT.



DO admire a man who can coolly get up and admit that he charges first-class fares for fourth-class accommodation." We believe it was Captain G. T. C. Hill, now of "Pterodactyl" fame, who made this remark at the first Air Conference, held at the Guildhall some years ago.

While we have undoubtedly progressed a great deal since then, it would be idle to pretend that anything approaching real comfort has as yet been attained in air travel. FLIGHT has before now called attention to this, and has, perhaps, been somewhat misunderstood in consequence. Yet we feel certain that no useful purpose is served by pretending that the comfort in air travel is all that it might be. We are aware that hitherto "commercial" aviation has been mainly concerned with safety and a certain measure of reliability, and with attempting to keep the financial losses incurred down to a reasonable figure. It is, however, quite certain that granted perfect safety and sufficient reliability, that class of the general public likely to be the main source of revenue in the future will expect—and quite rightly so—that air transport shall offer comfort as well as speed. Otherwise the public will not use air travel in such numbers as to bring the volume of business up to what is necessary in order to make air transport pay.

It is a very fortunate fact that, owing to the very strict policy which Great Britain has adopted from the first in matters relating to commercial aviation, we can now claim to have attained a very high standard of safety indeed. The general public may not have fully realised this at the moment, but is bound to do so in time. The reliability attained on the British routes radiating from Croydon is now also reasonably good, although figures of any value will not be available until the basis for judging reliability is changed from that used hitherto to one of "number of flights completed to number of flights scheduled." Fortunately we have, in Sir Samuel Hoare's memorandum to the Empire Conference, an official intimation that

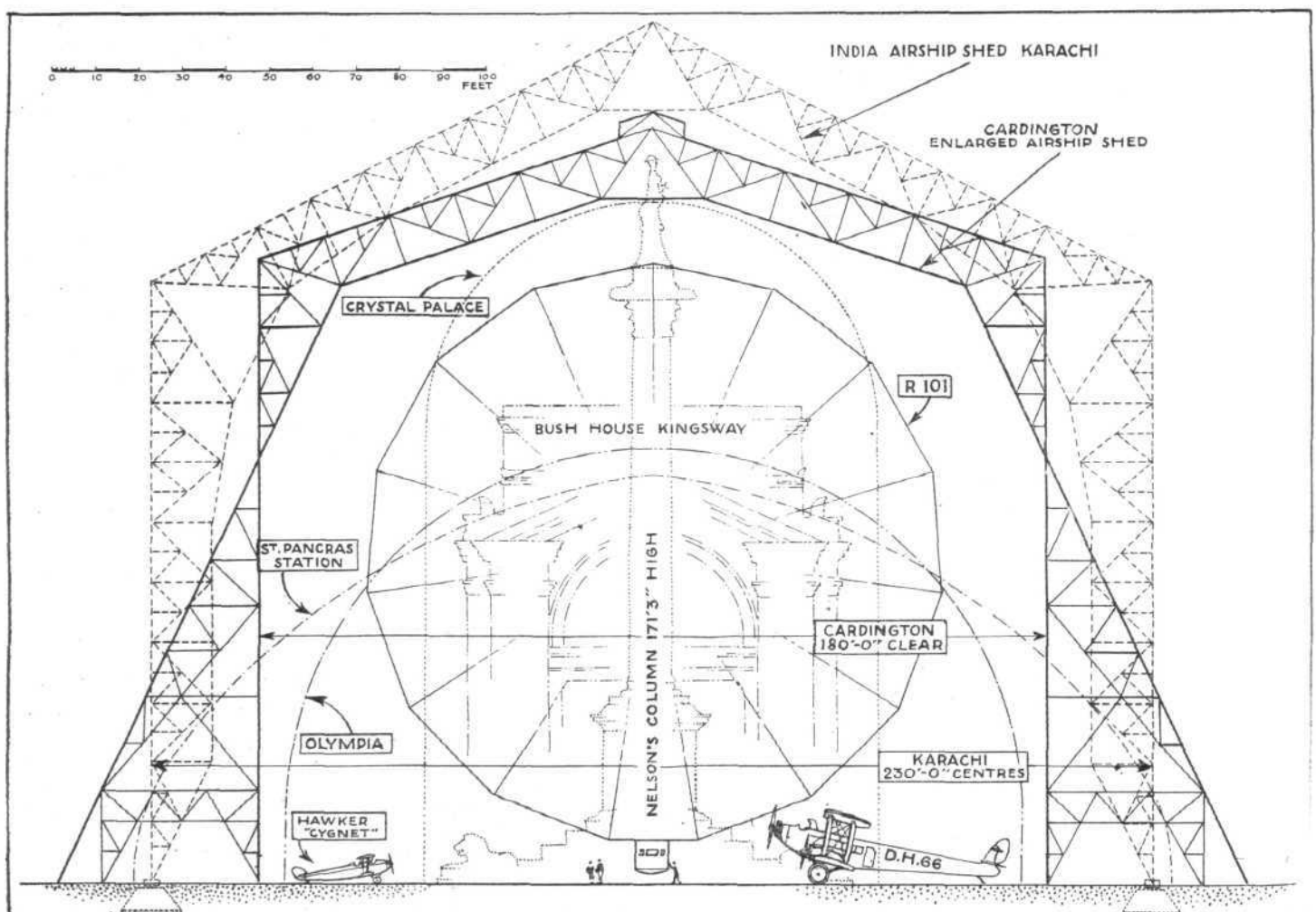
this basis may be employed in the future. There still remains a third important factor: that of comfort.

At the dinner arranged by the Royal Aeronautical Society at the Royal Aero Club on Monday last, "Comfort" was the subject for discussion. In opening the debate Air-Commodore Weir very rightly pointed out that one of the first essentials to comfort was a feeling of safety. With the advent of high-power three-engined machines the feeling of safety should be present, and the initial condition be thus satisfied. There still remain—apart from such more or less simple problems as chairs of comfortable shape, good ventilation and heating—the questions of air sickness and noise. We believe that air sickness may be largely prevented by good ventilation, and anyway in the future machines will probably fly a good deal higher than they do now, and thus be more out of the "bumps." Finally, there is the trouble of noise, which is probably much more serious than generally realised. On this subject it seems to us that Captain de Havilland hit the nail on the head when he suggested that we should turn our attention to finding means of making the cabin walls absorb the noise rather than to try to eliminate the external noises at their source. Here is a field for experiment which might yield surprising results, and there is at least a possibility that sufficient silence in the cabin might be attained without sacrificing power. At the same

time, of course, everything possible should be done to reduce the noises at their source.

◆ ◆ ◆

Records In this week's issue of *FLIGHT* we publish a list of world's records as they stood up to the end of 1926. Out of the 72 records recognised, France holds 34, Italy 13, America 10, Switzerland 7, Germany 5, and Denmark 3, *Great Britain none*. Truly, when small countries like Switzerland and Denmark hold world's records it is time we bestirred ourselves. Fortunately, there are signs that Great Britain may, during the present year, attempt several world's records. We have previously complained that the Air Ministry's attitude has prevented British service machines from attempting to establish records. We are very glad to learn (semi-officially) that where a constructor can convince the Ministry that one of his types stands a reasonable chance of beating an existing record, no official obstruction will be placed in the way of giving proof. This has not been established as a "principle" as between the Air Ministry and the S.B.A.C., but we are informed that each case will be treated on its merits, and are given to understand that the official attitude is likely to be "benevolent," which is something to the good. Messieurs British Aircraft Constructors, it is, therefore, now up to you.



RELATIVITY! The above diagram, which we have prepared from material supplied by the Air Ministry, gives an excellent idea of the magnitude of the two huge airship sheds intended for the England-India airships now under construction. For comparison, certain well-known examples of architecture—the Crystal Palace, Bush House, Olympia, St Pancras Station, and Nelson's Column—have been plotted to the same scale, together with a D.H. "Hercules" air liner and a Hawker "Cygnet" light 'plane.

THE FOKKER B.III

A New Metal-Hull Flying-Boat with Napier "Lion!"

ONE of the latest productions of the famous Dutch Fokker factory at Amsterdam is the B.III flying-boat, a brief description of which, together with illustrations, we give herewith. Like the majority of other Fokker machines, the B.III is fitted with a British engine—the Napier "Lion."

The Fokker B.III, which is a pusher type sesquiplan long-distance sea reconnaissance machine, has been developed from the Fokker amphibian flying-boat B.I and the subsequent B.II flying-boat. The former machine—which was described in FLIGHT for December 21, 1922—was first built in the latter part of 1922, and during the last three years this type has given such excellent results in daily service with the Dutch East Indian Naval Air Force that it was decided to produce a modern version, viz., the B.III.

As a general type the B.III is similar to its prototype, but differs principally in that it is not an amphibian and that several improvements in the construction have been introduced. The top 'plane, which has a distinct sweep back from root to tips, is considerably larger both in span and chord than the lower 'plane, which is straight in plan but set at a slight dihedral angle.

The top 'plane is in two panels, being attached at the roots to an arrangement of struts from the hull which also support the engine. The lower 'plane, also in two panels, is attached directly to the hull. Interplane bracing is of the Warren type, the struts being streamline tubes.

In construction the 'planes follow usual Fokker practice, the top 'plane being covered partly with plywood and partly with fabric; the lower 'plane all plywood covered.

The tail surfaces consist of a triangular horizontal stabilising surface mounted well above the hull, on a thick-section fin, to which is hinged the balanced rudder; divided elevators are hinged to the trailing edge of the tail 'plane.

The hull, which differs slightly in general design from that of the B.I but is similar constructionally, is entirely of duralumin construction. It has two steps, and is of the co-called flexible type, without longerons, sufficient rigidity being secured by means of girders of profiled duralumin sheet. The whole of the hull is covered with duralumin sheets.

When employed as a military machine the crew consists of three persons, the pilot's cockpit being located immediately below the leading edge of the top 'plane, another cockpit, seating two side by side, being provided in the nose of the hull. The B.III, however, can also be used as a commercial machine, in which case a comfortable cabin is provided in the middle of the hull.

The 450 h.p. Napier "Lion" engine is carried above the hull, and a short distance below the top 'plane, by an arrangement of N streamline steel struts, and drives a pusher airscrew. The fuel tanks, of 850 litres (178·4 galls.) capacity, are located in the hull.

The principal characteristics of the B.III flying boat are:—

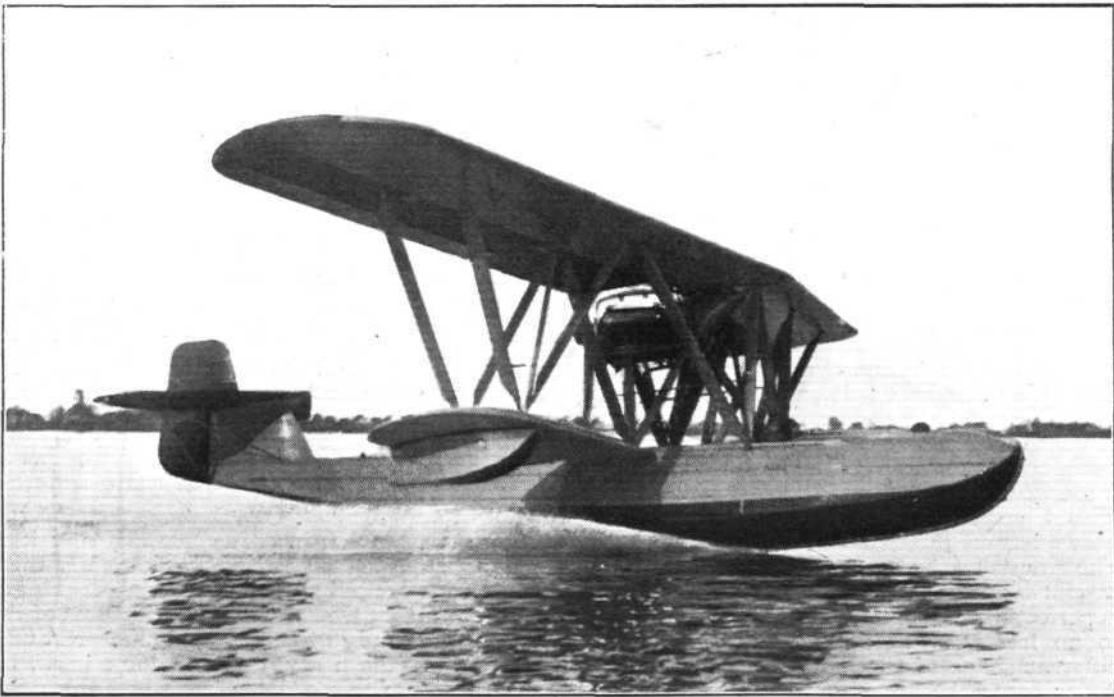
| | | | | |
|----------------------|----|----|----|----------------------------|
| Span | .. | .. | .. | 18 m. (59 ft.). |
| Overall length | .. | .. | .. | 11·85 m. (38 ft. 10 ins.). |
| Height | .. | .. | .. | 3·95 m. (13 ft.). |
| Area of main 'planes | .. | .. | .. | 56 sq. m. (602·5 sq. ft.). |



THE FOKKER B. III FLYING BOAT: Another view of the "Lion"-engined machine in flight.

| | | | | |
|-------------------------------|----|----|----|----------------------------|
| Weight empty | .. | .. | .. | 1,870 kg. (4,123 lbs.). |
| Useful load | .. | .. | .. | 1,200 kg. (2,646 lbs.). |
| Weight laden | .. | .. | .. | 3,070 kg. (6,769 lbs.). |
| Maximum speed | .. | .. | .. | 180 k.p.h. (111·6 m.p.h.). |
| Cruising speed | .. | .. | .. | 155 k.p.h. (96 m.p.h.). |
| Climb to 1,000 m. (3,280 ft.) | .. | .. | .. | 5·5 mins. |
| " 2,000 m. (6,560 ft.) | .. | .. | .. | 13·5 " |
| " 3,000 m. (9,840 ft.) | .. | .. | .. | 26 " |
| Ceiling | .. | .. | .. | 3,700 m. (12,136 ft.). |

The Fokker B. III Flying Boat: A recent production from the Dutch Fokker factory. It is fitted with a Napier "Lion," and has a metal hull.



NEW LAMPS FOR OLD

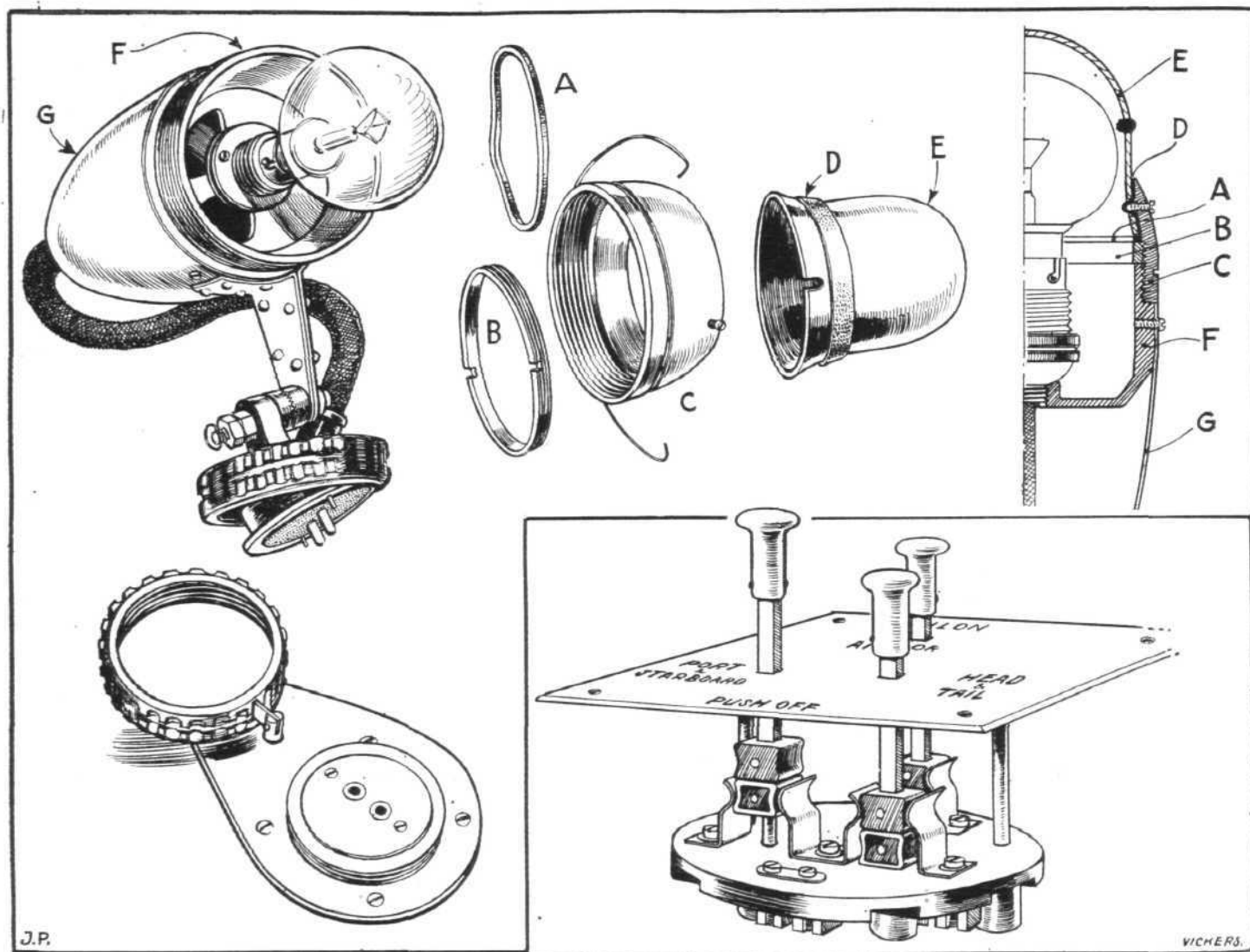
New Vickers-Davis Navigation Equipment Represents Great Saving in Weight

It would not, at first sight, appear that the navigation lamps and generating equipment of an aircraft offered any particular scope for the exercise of the aeronautical designer's pet hobby (or is it a pet aversion?): that of saving weight. It might have been thought that one has to have a certain number of lamps, with their generator, accumulator, switches and other accessories, and that no matter what one did, the result could only amount, figuratively speaking, to ounces saved. Probably that is why hitherto we have been perfectly content to accept as a necessary evil the equipment which has become standardized, and have never troubled to wonder whether something worth while could be done by re-designing this part of the equipment of a modern aircraft. Yet when one

by Vickers, among which may be mentioned the fact that, with the exception of the "upward identification lamp," all the lamps are interchangeable, *i.e.*, any one lamp can be used as a head lamp, port or starboard lamp, or tail lamp, the only alteration necessary being a change, rapidly carried out, of the glass dome.

The accompanying photographs show a set of the new Vickers-Davis lamps, while other parts of the equipment are also illustrated by photographs, while details of the lamps themselves, and their switches, are shown by sketches.

In the main the sketches are self-explanatory. It might, however, be pointed out that the body *F* and tail fairing *G*



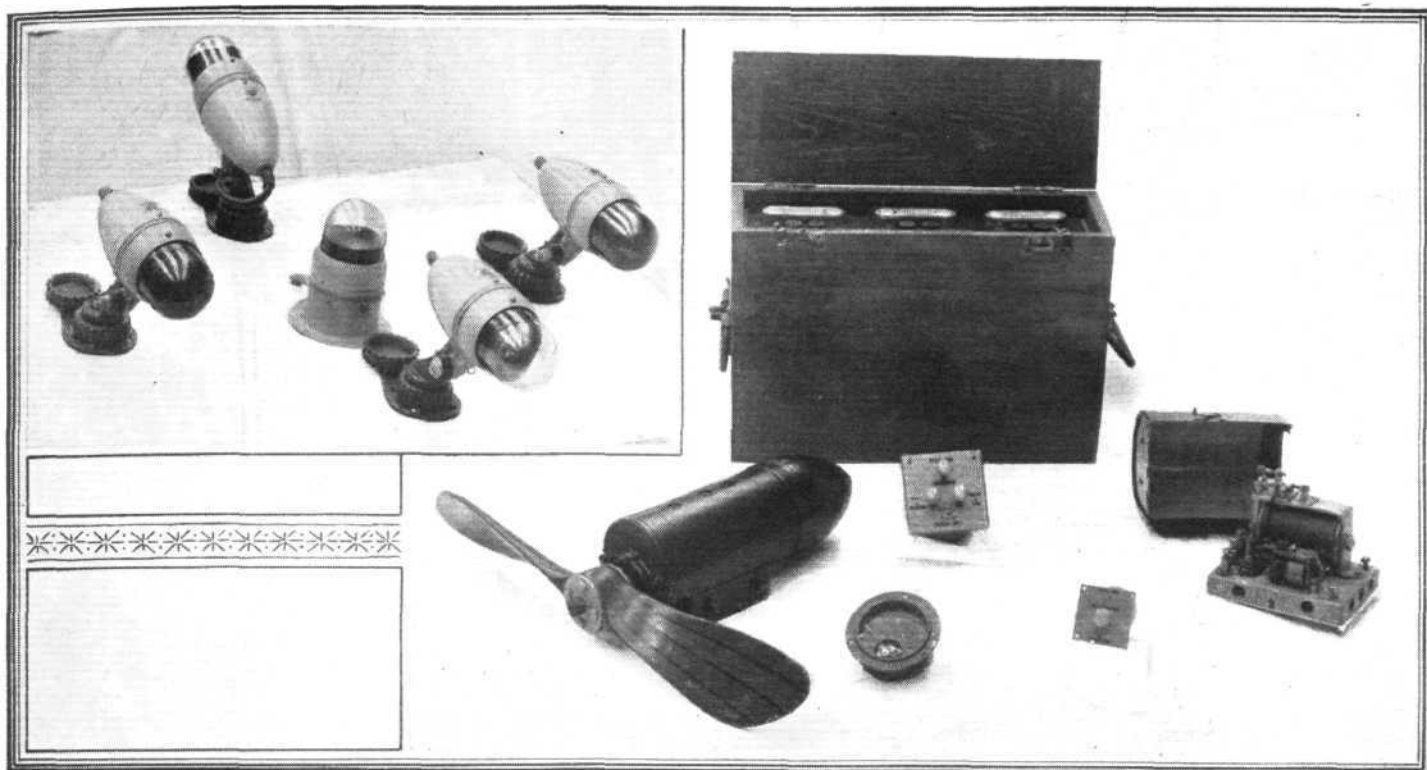
DETAILS OF NEW VICKERS NAVIGATION LAMPS: On the left a complete lamp with front glass dome removed. The manner of securing and locking this is indicated, the reference letters corresponding to those of the sectional view on the right. Details of the special switch are shown in the inset.

comes to think of the matter it is obvious that, at the present rate of increase in the number of "gadgets" which almost any type of aeroplane is called upon to carry, some drastic measures will have to be adopted.

With their usual foresight, Vickers, Ltd., realised this some time ago, and got busy on the problem of producing a set of navigation lamps and generating equipment which should represent a considerable saving in weight while possessing other advantages perhaps at least as important. The result has been a completely new equipment, in which careful design and a great deal of commonsense have succeeded in perfecting a set of lamps in which the weight saving amounts to no less than 57.5 per cent. Moreover, owing to the different shape of the lamps, a reduction in frontal area of 9 per cent. accompanies the saving in weight. Even so, there are other advantages of the new equipment marketed

are made of aluminium, while the dome housing *C* and locking ring *B* are of Vickers Duralumin. The glass dome *E* is located and prevented from turning in the housing *C* by a grub screw, the dome being slotted for this. The rubber band *D* protects the dome in its housing, while the edge of the dome has another rubber ring interposed between it and the locking ring *B*. Screwing up the locking ring forces the glass dome against the sloping face of the housing and holds it in position. The housing ring itself, *C*, is screwed home on the base or body *F*, and is then drilled and locked by the circlip.

One of the clever features of the Vickers-Davis lamp is the new type of glass dome. Not only has a good deal of weight been saved on the dome itself, but by the method of painting the dome, with just the right angle of visibility, colour, etc., the one type of lamp serves for at least four positions.



["FLIGHT" Photographs]

NEW VICKERS NAVIGATION LAMPS AND GENERATING EQUIPMENT : On the left a group of 5, including front, port, starboard, tail, and upward identification light. On the right, the accumulator, generator, switches, voltmeter and combined voltage control regulator and cut-out.

as already mentioned. The glass dome has burned into it during manufacture some substance which renders it opaque except for the actual opening required for the angle in question. As this substance is burned into the glass and not painted on the outside, it is unaffected by weather and cannot be scraped off, so that except for actual accidental breakage of the dome, no attention is required.

The generating equipment has also been re-designed, with

the result that a total saving in weight of $4\frac{1}{2}$ lb. has been effected. This equipment gives an output of 150 to 200 watts at 12 to 14 volts, and special high-output types are also available.

The weights of the individual items are : Aircrow, 8 oz. ; generator and mounting, 11 lb. $6\frac{1}{2}$ oz. ; combined voltage control regulator and cut-out, 3 lb. $\frac{1}{2}$ oz. ; voltmeter, 9 oz. ; special 40-amp. accumulator, 40 lb. empty.

AIR SURVEY IN CHITTAGONG

HITHERTO most contracts for aerial surveys have been undertaken for the purpose of locating minerals, including oil. One exception was that carried out by the Air Survey Co., Ltd., to the order of the Government of Sarawak in Borneo. But, though Raja Brooke is an Englishman, Sarawak is a feudatory, not a colony or Dominion, of the British Empire. An order by a British Government for an aerial survey for revenue purposes, therefore, marks a step in advance in the progress of aircraft as a servant of mankind.

Such a contract has been granted by the Government of Bengal to the Air Survey Co., Ltd., and Mr. Ronald Kemp has just sailed from England for India to supervise the work. The chairman of the company, Col. C. H. D. Ryder, lately Surveyor-General in India, had preceded him, while the photographing party, consisting of Mr. J. Durward (photographer) and Mr. Neville Vincent (pilot) started the field work at the beginning of January, and should have all the ground covered by the end of February. The aeroplane in use is a D.H.9 with floats, and a modified L.B. camera is employed. This camera uses plates, which are essential when stereoscopic photographs are needed, as in the present case. For this reason a 60 per cent. overlap is being allowed for. The base is at the seaport town of Chittagong, on the eastern shore of the Bay of Bengal, with an advanced base at Cox's Bazaar, further south. A second D.H.9 is held in reserve at Rangoon.

The word "revenue," perhaps, does not tell its own story, except to people who have been in India. There revenue means for all practical purposes the fruits of the earth. The vast level plains of India are the chief producers of revenue for the Indian Government, and wherever cultivation is possible the highly efficient Survey of India has made extremely accurate maps. The hilly districts have not always been so thoroughly surveyed.

The district of Chittagong consists of the most important port in the north-east of the Bay of Bengal, and a hinterland. In the latter lie hilly districts, with cultivated plains beyond

them on either side. The ridges are steep, but there are few points of more than 1,000 ft. Between the ridges are level tracts, which are cultivated, and, of course, have been thoroughly mapped. Much of the hill country is covered with jungle, which is being gradually cleared, and it is now desired to obtain revenue from the hills by encouraging the cultivation of suitable crops. A species of grass grows on them which is useful for making paper, etc., and it is hoped that this industry can be extended. Paper making is an industry which has been growing in India for some years past, and forest officers have been required to examine and report on the various grasses and bamboos in the Government forests which are suitable for the paper mills.

These hills have not been thoroughly mapped, and it would be a long and costly business to undertake the work by means of ground parties. As time, as well as economy, is of importance when the development of an industry is contemplated, the Government of Bengal naturally turned to the firm which was so successful in surveying from the air the delta of the Irawaddi, and which, moreover, was already on the spot. At least 800 square miles in different parts of the hills are to be photographed on a fairly large scale. When the field work, i.e., the actual photography, has been completed, the Survey of India will probably plot out a map in Calcutta, while Mr. Kemp will bring the results back to the London offices of the company in order to correct inaccuracies and produce a final set of mosaics.

This contract is a comparatively small one so far as square mileage is concerned, but it is extremely interesting, and one might say significant. If the Government of India and the various provincial Governments, which are always keen on surveys and maps, once get really bitten with the idea of aerial photography, it seems likely that Mr. Kemp and Mr. Raynham will be kept quite sufficiently busy for a number of years to come.

F. A. DE V. R.



Sir Samuel Hoare's Flight

IN our last issue we referred to the arrival of Sir Samuel Hoare and his party on February 1 at Karachi, where the "City of Delhi" made a perfect landing in the dark. The Air Minister inspected the airship base and R.A.F. depot before leaving there on February 3, to a farewell salute of 17 guns, and passing over the Persian Gulf the flight of 420 miles to Charbar was accomplished in four hours. Jask, a further distance of 180 miles, was reached the same day and Linga (190 miles) the following morning. On February 4 Bushire was reached in the afternoon and Basra and Baghdad on Saturday. On Monday the flight of 800 miles to Cairo was concluded on that day despite an adverse gale of considerable violence. From here the remainder of the journey to Croydon will be continued by boat and train as far as Paris, as there is not, as yet, any air link between England and Egypt, but at Paris the Air Minister will again resume flying on the normal Imperial Airways service to Croydon, being scheduled to arrive there on February 16, at 3.30 p.m. Giving his impressions of the flight from Delhi Sir Samuel Hoare spoke, at Cairo, of the great technical advance in modern machines. He had full praise for British engineering skill for having evolved an aeroplane capable of accomplishing such an arduous task under most difficult conditions. He said that before the start at Delhi there was a delay of three hours through a dense white fog, in spite of which they arrived at Karachi in time for dinner, making a perfect landing in the dark. Again, on arrival there, they were informed that the aerodrome at Pagni, where they had intended landing, was swamped by rains, so it was decided to attempt to reach Charbar, 420 miles, and although head winds were met a landing was made with petrol to spare. Their best performance on the long flight from Baghdad to Cairo was the section from Beersheba, across Sinai, to Ismailia, finishing the last hour to Cairo in darkness. Sir Samuel Hoare praised highly the skill of his pilot and navigator, Captain Woolley-Dod and Squadron-Leader Johnson. The altitude flown at from Baghdad was 1,000 ft. where conditions were most boisterous owing to the desert winds, but the Air Minister thought the discomfort much less than that experienced on board ship in a stormy sea. He said that the noise of the engines and the vibration was negligible, and passengers were able to read, write and talk with ease. He was very optimistic about the future of Imperial Airways and he paid high tribute to the Bristol "Jupiter" engines which had given no trouble whatever. During their stay in Cairo Sir Samuel and Lady Hoare are guests at the Residency.

"Hercules" No. 4 Ready

THE fourth of the "Hercules" air liners (three Bristol "Jupiter" engines) built by the De Havilland Aircraft Co. for Imperial Airways, for service on the Cairo-Karachi air route, has just been put through its trials at Stag Lane aerodrome by Capt. H. S. Broad. The tests have been successful in every way, the machine carrying a full load of passengers, including on one occasion the Duchess of Bedford. It is expected that this machine, along with No. 5 now under construction, will proceed to Cairo towards the end of this month.

The First British "Air Yacht"

WHAT is equivalent to the first privately-owned air yacht in this country has just been ordered from the De Havilland Co., Ltd., of Stag Lane, Edgware, by Mr. M. G. W. Burton, who has been learning to fly at the D.H. School. The machine is a D.H. "Moth" seaplane, fitted with "Short" metal floats, hand starter and other necessary equipment required by the private owner. Mr. Burton will use the "Moth" for pleasure trips and intends to keep the machine when not in use moored in the Solent.

Thames-Seine Experimental Air Service

FURTHER to our reference in FLIGHT for January 6 last, regarding the proposed air service between London and Paris, using the Thames and the Seine respectively as terminal points, the first of a series of 14 preliminary flights will be inaugurated on February 11 by the French Air Union Co. At 11.30 a.m. the first machine, a LeO amphibian flying-boat, 6-seater, piloted by M. Bajac, will take off from the Thames at Hammersmith, near Tea Rose Wharf (Anglo-American Oil Co., Ltd.) en route for Suresnes-s-Seine. Should these

experimental flights prove successful, the Air Union propose to establish a daily amphibian service between the two rivers, probably linking up with another amphibian service between Suresnes and Tunis, via Lyons, Marseilles, Corsica, and Ajaccio.

Pinedo Off Again

ON February 8, the famous Italian pilot, Marquis Pinedo, started on his world flight from Sesto Calende.

Courtney Meets with Accident

CAPT. F. T. COURTNEY met with an accident on February 7, when testing a new "Autogiro" at Hamble. Just as he was about to land one of the rotating wings developed a defect, and as a result the machine crashed to the ground. Capt. Courtney received cuts and bruises and was taken to a nursing home near Southampton, suffering from shock.

Khartoum-Kisumu Air Route Opened

THE Fairey seaplane, loaned to the North Sea Aerial and General Transport Co. by the Air Ministry to replace the damaged D.H. "Pelican," now undergoing repairs, having arrived at Khartoum last week, Capt. T. A. Gladstone left Khartoum on February 8 en route for Kisumu, thus opening the air service between these two points.

Swiss African Flight

LIEUT. MITTELHOLZER, who left Zurich on December 7 in a Dornier "Mercury" seaplane, carrying a scientific expedition to South Africa, arrived at Beira on February 7. Owing to the rarefied atmospheric conditions he had some difficulty in taking off from Jinja, and two members of the expedition had to proceed by boat.

Civil Aviation in India

THE Standing Finance Committee of the Legislative Assembly (India) agreed to the provision in the Budget of a grant of 30 lakhs of rupees (about £187,500) for civil aviation in India.

Snow v. Airlines at Croydon

THE recent snowfall in the London area caused some temporary hangars to collapse at Croydon Air Port, damaging three air liners. One was a Handley Page, which only suffered slight damage to the top wing. Another was a D.H. experimental air liner belonging to the Air Ministry and not used on the Paris service.

A Titled Taxi-Pilot

LORD OSSULSTON intends using his "Moth" and his services as pilot for air-taxiing at the rate of 1s. a mile, although primarily using his machine for private travel.

Tired of Following the White Line?

A LONDON taxi-driver, Mr. H. Solomon, is using his tips to pay fees for learning to fly, because the streets of London are becoming far too dangerous!

International Aero Exhibition in Denmark

THE Danish Royal Aeronautical Society is arranging an international aeronautical exhibition, to be held in Copenhagen, probably at the end of April next, in connection with the air display at Kastrup. The Crown Prince of Denmark has given his patronage to the exhibition, which will be held in the "Forum."

First Night Flight Across Panama

THE first night flight across the Isthmus of Panama was recently accomplished by two U.S. Army Air Service pilots, Lieuts. R. T. Zane and R. W. C. Winsatt. Flying two D.H. machines, equipped with radio and for night flying, they took off from France Field and flew to the opposite side of the Canal Zone, then returned to the station at France Field. During the flight, which lasted an hour and a half, numerous telephone calls were received at France Field from residents of the Canal Zone and Panama Republic, notifying the station that two aeroplanes, with red and green lights on their wing tips, had been observed, and that probably they were lost and were unable to make a landing!

Revised U.S. Air Mail Fees

HITHERTO, mails carried by air in the U.S.A. were charged according to a system of zones, into which the various routes were divided. With the increasing number of contract air mail routes, the variety of rates caused considerable confusion, with the result that, as from February 1 last, the Post Office Department introduced a general rate of 10 cents per half-ounce or fraction thereof, regardless of the distance covered, or over which section carried.

WORLD'S RECORDS IN AVIATION

We give below a complete list of the World's aviation records, as standing, on December 31, 1926, compiled from the official bulletin issued by the F.A.I., Records marked thus (*) are new ones, established during 1926. Once again, it will be seen, **not a single record** stands to the credit of Great Britain.

CLASS A (BALLOONS)

(a) All categories

Duration.—87 hrs., Germany, H. Kaulen, December 13-17, 1913.
Distance.—3052.700 kms. (1,896.9 miles), Germany, Berliner, February 8-10, 1914.
Altitude.—108,000 m. (35,434 ft.), Germany, Suring and Berson, July 31, 1901.

(b) 600 cubic m. (21,192 cubic ft.)

Duration.—22 hrs. 34 mins.: France, G. Cormier, August 10-11, 1924.
Distance.—804.173 kms. (499.7 miles): France, G. Cormier, July 1, 1922.

(c) 601-900 cubic m. (31,788 cubic ft.)

Duration.—23 hrs. 28 mins.: France, Jules Dubois, May 14-15, 1922.
Distance.—804.173 kms. (499.7 miles): France, Georges Cormier.

(d) 901-1,200 cubic m. (42,384 cubic ft.)

Duration.—23 hrs. 28 mins.: France, Jules Dubois.
Distance.—804.173 kms. (499.7 miles): France, G. Cormier.

CLASS B (DIRIGIBLES)

Duration.—15 hrs., Italy, Castracane and Castruccio on P 5, June 25, 1913.
Distance.—810 kms. (493.3 miles), Italy, Castracane and Castruccio on P 5, July 30, 1913.
Altitude.—3,080 m. (10,102 ft.), France, Cohen on Conté, June 18, 1912.

CLASS C (POWER-DRIVEN AEROPLANES)

(a) Records without refuelling during flight

Distance, Non-Stop.—4,400 kms. (2,728 miles), France, Drouhin and Landry on Farman, 450 h.p. Farman, Etampes-Chartres, August 7-9, 1925.

Duration (Non-Stop).—45 hrs. 11 mins. 59 secs., France, Drouhin and Landry on Farman, 450 h.p. Farman, Etampes-Chartres, August 7-9, 1925.

**Distance (Non-Stop) Cross-Country.*—5,396 kms. (3,345.5 miles), France, Cpts. Costes and Rignot on Bréguet 19, Hispano-Suiza 500 h.p., Le Bourget-Jask, October 28-29, 1926.

**Altitude.*—12,442 m. (40,809.7 ft.), France, Callizo on Blériot-Spad, Lorraine 450 h.p., at Buc, August 23, 1926.

Speed (Ground Level).—448.170 k.p.h. (278.4 m.p.h.), France, Adj. Bonnet on Ferbois mono, 550 h.p. Hispano-Suiza, at Istres, December 11, 1924.

100 kms. (62.14 miles).—401.279 k.p.h. (248.8 m.p.h.), U.S.A., Lieut. C. Bettis, on Curtiss R.3C.1, 600 h.p. Curtiss, Mitchell Field, October 12, 1925.

500 kms. (310.7 miles).—306.696 k.p.h. (190.6 m.p.h.), France, Sadi-Lecoq on Nieuport-Delage, 500 p.p. Hispano-Suiza, at Istres, June 23, 1924.

1,000 kms. (621.4 miles).—248.296 k.p.h. (153.9 m.p.h.), France, Fernand Lasne on Nieuport-Delage, 42 C.I. Hispano-Suiza, 500 h.p., at Villesauvage, August 29, 1925.

2,000 kms. (1,242.8 miles).—218.759 k.p.h. (135.63 m.p.h.), France, Fernand Lasne on Nieuport-Delage, 42 C.I. Hispano-Suiza, 500 h.p., at Villesauvage, September 12, 1925.

Records with 500 kgs. (1,102 lbs.) Useful Load

**Duration.* 14 hrs. 43 mins. 29 secs., Switzerland, M. Mittelholzer and G. Zinsmaier, on Dornier Merkur, B.M.W. 6, of 460 h.p., Dubendorf, June 24, 1926.

**Distance.*—2,301 kms. (1,426.6 miles), Switzerland, M. Mittelholzer and G. Zinsmaier on Dornier Merkur, B.M.W. 6, of 460 h.p., Dubendorf, June 24, 1926.

Altitude.—8,578 m. (28,135.8 ft.), U.S.A., Lieut. H. R. Harris on T.P.1, 400 h.p. Liberty, Wilbur Wright Field, Dayton, Ohio, May 21, 1924.

Speed.—100 kms. (62.14 miles).—281.039 k.p.h. (174.2 m.p.h.), France, Fernand Lasne on Nieuport-Delage, 42 C.I., Hispano-Suiza, 500 h.p. at Etampes, October 7, 1925.

500 kms. (310.7 miles).—249.618 k.p.h. (154.7 m.p.h.), France, Fernand Lasne on Nieuport-Delage, 42 C.I. Hispano-Suiza, 500 h.p. at Etampes, September 1, 1925.

1,000 kms. (621.4 miles).—263.028 k.p.h. (163.07 m.p.h.), France, Fernand Lasne on Nieuport-Delage, 42, 500 h.p. Hispano-Suiza, at Etampes, May 14, 1926.

2,000 kms. (1,242.8 miles).—163.132 k.p.h. (101.14 m.p.h.), Switzerland, W. Mittelholzer and G. Zinsmaier on Dornier Merkur, B.M.W. 6, of 460 h.p., Eubendorf, June 24, 1926.

Records with 1,000 kgs. (2,205 lbs.) Useful Load

**Duration.*—10 hrs. 5 mins. 1 secs., Switzerland, W. Mittelholzer and G. Zinsmaier on Dornier Merkur, B.M.W. 6, of 460 h.p., Dubendorf, June 29, 1926.

**Distance.*—1,400 kms. (868 miles), Switzerland, W. Mittelholzer and G. Zinsmaier on Dornier Merkur, B.M.W. 6, of 460 h.p., Dubendorf, June 29, 1926.

**Altitude.*—6,540 m. (21,551.2 ft.), France, Lucien Coupet, seaplane, Bréguet 29, Farman 500 h.p., Toussus-le-Noble, March 17, 1926.

Speed.—100 kms. (62.14 miles).—246.440 k.p.h. (152.7 m.p.h.), France, Fernand Lasne on Nieuport-Delage 42 C.I. Hispano-Suiza 500 h.p., at Etampes, October 16, 1925.

500 kms. (310.7 miles).—163.076 k.p.h. (101.1 m.p.h.), Switzerland, W. Mittelholzer and G. Zinsmaier, on Dornier Merkur, B.M.W. 6, of 460 h.p., Dubendorf, June 29, 1926.

1,000 kms. (621.4 miles).—161.986 k.p.h. (100.4 m.p.h.), Switzerland, W. Mittelholzer and G. Zinsmaier on Dornier Merkur, B.M.W. 6, of 460 h.p., Dubendorf, June 29, 1926.

Records with 2,000 kgs. (4,410 lbs.) Useful Load

**Duration.*—4 hrs. 4 mins. 13 secs., France, Robert Bajac and de Lamothe, on Lioré and Olivier, 21, Jupiter 420 h.p., September 16, 1926.

**Distance.*—500 kms. (310.7 miles), France, Robert Bajac and de Lamothe, on Lioré and Olivier, 21, Jupiter, 420 h.p., September 16, 1926.

Altitude.—4,990 m. (16,367 ft.), France, L. Bossoutrot on super-Goliath Farman, 4 Farman 500 h.p., Le Bourget, November 12, 1925.

**Speed.*—100 kms. (62.14 miles).—150.300 k.p.h. (93.18 m.p.h.), France,

Robert Bajac and de Lamothe, Lioré and Olivier, 21, Jupiter, 320 h.p., September 16, 1926.

200 kms. (124.2 miles).—147.511 k.p.h. (91.4 m.p.h.), France, Robert Bajac and de Lamothe, on Lioré and Olivier, 21, Jupiter, 420 h.p., September 16, 1926.

Records with 5,000 kgs. (11,025 lb.) useful load.

Duration.—1 hr. 12 mins. 21 secs., France, L. Bossoutrot on super-Goliath Farman, 4 of 500 h.p. Farman, Le Bourget, November 16, 1925.

Altitude.—3,586 m. (11,762 ft.), France, L. Bossoutrot on super Goliath Farman, 4 of 500 h.p. Farman, Le Bourget, November 16, 1925.

Greatest load to ceiling of 2,000 m. (6,560 ft.).

6,000 kgs. (13,230 lb.), France, L. Bossoutrot on super Goliath-Farman, 4 of 500 h.p. Farman, Le Bourget, November 16, 1925.

(b) Records with re-fuelling during flight.

Distance (Non-stop).—5,300 km. (3,293.5 miles), U.S.A., Lieut. L. H. Smith and J. P. Richter on D.H. 4 B, 400 h.p. Liberty, Rockwell Field (Colorado) August 27-28, 1923.

Duration.—37 hrs. 15 mins. 14 secs., U.S.A., as above.

CLASS CBIS (SEAPLANES).

Records without refuelling.

Distance (Non-stop).—1,600 kms. (994.2 miles), U.S.A., Lieuts. F. W. Read and J. D. Price on seaplane Navy C.S.-2, 585 h.p. Wright, Washington, July 11-12, 1924.

Duration.—28 hrs. 36 mins. 27 secs., U.S.A., Lieuts. Shildhauer and J. R. Kyle, on seaplane P.N. 9, 2 Packards, Philadelphia, May 1-2, 1925.

Distance (Non-stop Cross-country).—2,963 kms. (1,837 miles), U.S.A., Commandant Rodgers and Lieut. Byron Connell on seaplane P.N. 9, 2-500 h.p. Packards, at San Pablo Bay, (California)—Hawaii, August 31-September 1, 1925.

Altitude.—8,980 m. (29,454.4 ft.), France, Sadi-Lecoq on seaplane Nieuport-Delage, 300 h.p. Hispano Suiza, at Meulan, March 11, 1924.

**Speed (Ground Level).*—416.618 k.p.h. (258.3 m.p.h.), U.S.A., Commandant Mario de Barnardi on Macchi S.39 seaplane, Fiat 800 h.p. at Hampton Roads, Norfolk, November 17, 1926.

100 kms. (62.14 miles).—399.423 k.p.h. (247.6 m.p.h.), U.S.A., Commandant Mario de Barnardi on Macchi S.29 seaplane, Fiat 800 h.p. at Hampton Roads, Norfolk, November 13, 1926.

500 kms. (310.7 miles).—259.328 k.p.h. (160.7 m.p.h.), Lieut. R. A. Oistie, U.S.N., on Curtiss-Navy C-R seaplane, Curtiss D.12, 450 h.p., at Bay Shore Baltimore, October 25, 1926.

1,000 kms. (621.4 miles).—163.578 k.p.h. (101.6 m.p.h.), U.S.A., Lieuts. V. E. Bertrandias and G. C. McDonald on Loening Air Yacht, 400 h.p. Liberty, Hampton Roads, November 7, 1924.

Records with 500 kgs. (1,102 lb.) useful load.

Duration.—7 hrs. 35 mins. 54 secs., U.S.A., Lieut. H. E. Holland on seaplane F.5. L. 2-400 h.p. Liberty, at San Diego, June 6, 1923.

**Distance.*—950 kms. (589 miles), Italy, M. A. Passaleva on seaplane Savoia-Marchetti S. 55, 2 Asso 500 h.p., Lac Majeur, October 19, 1926.

**Altitude.*—5,731 m. (18,797.6 ft.), Germany, Captain E. L. Tornberg on seaplane Heinkel, Napier-Lion, 450 h.p. 12-cyl., Warnemünde, November 10, 1926.

**Speed.*—100 kms. (62.14 miles).—203.275 k.p.h. (126 m.p.h.), France, Lieut. de vaisseau Demougeot, on seaplane Villiers 4bis, Lorraine 450 h.p. Saint Raphael, 13 May, 1926.

500 kms. (310.7 miles).—180.234 k.p.h. (111.7 m.p.h.), Denmark, Pilot Landmann on seaplane Rohrbach, circuit of Kastrup, August 18, 1926.

Records with 1,000 kgs. (2,205 lb.) useful load.

**Duration.*—5 hrs. 41 mins. 7 secs., Italy, M. A. Passaleva on seaplane Savoia-Marchetti S. 55, 2 Asso 500 h.p. Lac Majeur, October 19, 1926.

**Distance.*—950 kms. (589 miles), Italy, M. A. Passaleva on seaplane Savoia-Marchetti S. 55, 2 Asso 500 h.p. Lac Majeur, October 19, 1926.

**Altitude.*—4,492 m. (15,733.7 ft.), Germany, Pilot V. Gronau on seaplane Heinkel H.E. 5, Napier-Lion, 450 h.p. Warnemünde, November 2, 1926.

**Speed.*—100 kms. (62.14 miles).—185.471 k.p.h. (115 m.p.h.), Denmark, Pilot Landmann on seaplane Rohrbach, circle of Kastrup, August 28, 1926.

500 kms. (310.7 miles).—180.234 k.p.h. (111.7 m.p.h.), Denmark, Pilot Landmann on seaplane Rohrbach, circle of Kastrup, August 28, 1926.

Records with 2,000 kgs. (4,410 lb.) useful load.

Duration.—5 hrs. 41 mins. 7 secs., Italy, M. A. Passaleva on seaplane Savoia-Marchetti S. 55, 2 Asso 500 h.p. Lac Majeur, October 19, 1925.

**Distance.*—950 kms. (589 miles), Italy, M. A. Passaleva on seaplane Savoia-Marchetti S. 55, 2 Asso 500 h.p. Lac Majeur, October 19, 1926.

Altitude.—3,006 m. (9,909.6 ft.), Italy, Ingénieur Guido Guidi on seaplane Dornier-Wal 33, 2-360 h.p. Rolls-Royce, at Bise, February 4, 1925.

**Speed.*—100 kms. (62.14 miles).—176.005 k.p.h. (109.1 m.p.h.), Italy, M. A. Passaleva on seaplane Savoia-Marchetti S. 55, 2 Asso 500 h.p. Lac Majeur, October 19, 1926.

500 kms. (310.7 miles).—173.567 k.p.h. (107.6 m.p.h.), Italy, M. A. Passaleva on seaplane Savoia-Marchetti S. 55, 2 Asso 500 h.p., Lac Majeur, October 19, 1926.

Greatest load to ceiling of 2,000 m. (6,560 ft.).

2,000 kgs. (4,410 lb.), Italy, Ingénieur Guido Guidi on seaplane Dornier Wal, 2-360 h.p. Rolls-Royce, at Bise, February 4, 1925.

CLASS D (GLIDERS).

Duration.—10 hrs. 29 mins. 43 secs., France, Commandant Massaux on Poncelet Vivette, July 26, 1925, at Vauville.

Altitude.—545 m. (1,787.6 ft.), France, Descamps on Dewoitine, at Biskra (Algeria), February 7, 1923.

Distance.—8,100 m. (5 miles), France, Lieut. Thoret on Bardin, at Vauville (Manche), August, 26, 1923.

CLASS G (HELICOPTERS).

Distance.—736 m. (2,414 ft.) France, Pescara on Helicopter Pescara, 180 h.p. Hispano-Suiza, at Issy-les-Moulineaux, April 18, 1924.

Letters for U.S. Air Mail

THE Postmaster-General announces that the air fee on letters intended for transmission by the United States Air Mail Services (Route 12 in the Air Mail Leaflet) has been

revised. All letters sent by these services to any address in the United States of America or beyond must now be prepaid with a flat-rate fee of 11d. per oz. (in addition to the ordinary postage).

AN UNSUBSIDISED AIR SERVICE IN AUSTRALIA

A NEW aerial service is about to be put into operation in Australia, a service which at first sight may appear to be somewhat unimportant, but which is, as a matter of fact, of interest for several reasons. In the first place, it is to be operated, by the Queensland and Northern Territory Aerial Services, Ltd. ("Qantas"), *without* subsidy. Secondly, although the distance between the two cities served by this air line—Brisbane and Toowoomba—is but little over 60 miles, the benefits and advantages offered to the inhabitants of both cities by an aerial service are expected to be such as to render this little air route a very important and popular one—in spite of the fact that the two cities are already served by railway. Furthermore, it is possible that this 60 miles of air line may form the first link of the much-wanted chain of airways connecting up with the existing Qantas air line, and other important cities at present "airwayless."

The time occupied by train between Brisbane and Toowoomba is 4 hrs. 5 mins. by Brisbane express, and 5 hrs. by ordinary train. By air the up journey (from Brisbane) will be made in 50 mins. and the down journey in 45 mins. The advantages of this service will be considerable. Business men will be able to leave the southern capital at 6.30 a.m., reach Toowoomba at 7.20, spend 3½ hours there, and be back in Brisbane by 12.15 p.m., after a total absence of less than six hours—or little more than the time occupied by a single railway journey between the two centres!

Again, through travellers from Brisbane to Sydney could spend a few hours at Toowoomba, and join the express train at that point without losing any of the 4½ hours which they would otherwise have spent on the express, which leaves Brisbane at 8 a.m. and Toowoomba at 12.30 p.m.

Apart from the business side there will also be other advantages. Toowoomba residents desiring to attend a Brisbane theatre or other late function may spend the night in Brisbane and get back by air in good time for breakfast and the business for the day. Arrangements will also be made for week-end trips; on Saturdays passengers will leave Brisbane at 12.45 p.m., arriving at Toowoomba at 1.35 p.m. and depart from Toowoomba at 1.55 p.m., arriving at Brisbane at 2.40 p.m.

A special Sunday service, should sufficient support be forthcoming, will also be carried out, as follows: Brisbane, dep., 9 a.m., Toowoomba, arr., 9.50 a.m.; Toowoomba, dep., 10 a.m., Brisbane, arr. 10.45; Brisbane, dep. 4 p.m., Toowoomba, arr. 4.50 p.m.; Toowoomba, dep. 5 p.m., Brisbane, arr. 5.45 p.m.

Rail passengers by the western mail (Charleville) reach Toowoomba at 6.50 a.m.; they could then spend nearly five hours there, yet be in Brisbane, by air, by mid-day.

One of the machines that will be employed on this service will be the D.H.50a biplane (G-AUFA) "Iris," which was built in the Qantas workshops at Longreach—under manufacturing licence granted by the De Havilland Co.—under the supervision of the Qantas Chief Engineer, Mr. W. A. Baird. This machine, by the way, made a test flight in August last, piloted by Mr. Hudson Fysh, when it climbed to 7,000 ft. in 16 mins. 45 secs. On its maiden trip "Iris"—so christened by Lady Stonehaven—carried Lord and Lady Stonehaven for 1,200 miles from Longreach to Newcastle Waters, and behaved like all good De Havillands do, transporting its passengers to their destination eight days sooner than would be possible by any other means of transport.

R.A.F. India Reunion Dinner

WILL our readers please note that the R.A.F. India Reunion Dinner will be held (at New Princes Restaurant) on March 26, and *not* March 12 as announced in last week's issue of FLIGHT.

Artificial Light as an Aid to Aerial Navigation

On February 22 next Mr. H. N. Green, Royal Aircraft Establishment, Farnborough, will read a paper on "Artificial Light as an Aid to Aerial Navigation," before the Illuminating Engineering Society, at the House of the Royal Society of

Arts, John Street, Adelphi, W.C. The meeting opens at 6.30 p.m.

Service Sports

THE fourth annual cross-country race for the Air Ministry Championship was decided at Ruislip on February 2, over a course of just under 5 miles, when F. S. Byatt (who won the first race in 1924) covered the course in 31 mins. 52 secs.

The Navy v. R.A.F. cricket match will be a three-day affair, and has been fixed for August 10, 11 and 12 next, at the Oval.



["FLIGHT" Photograph

DISFIGURATION: At the last House Dinner of the Royal Aero Club, Mr. C. R. Fairey referred to the manner in which the lines of an aeroplane are spoiled by registration letters. These two photographs rather bear out Mr. Fairey's contention. A motor car with registration letters "as large as the surface will permit" would probably not be easy to sell.

COMFORT IN AIR TRAVEL

THE Royal Aeronautical Society gave a dinner at the Royal Aero Club on February 7, which was followed by an informal discussion on "Comfort in Air Travel." Introducing the lecturer, Air-Commodore J. G. Weir, C.M.G., C.B.E., F.R.Ae.S., the Chairman, Colonel the Master of Sempill, A.F.C., A.F.R.Ae.S., said that the recent historic flight of Air-Commodore Weir to Cairo in the "Hercules" air liner had occurred to him as giving a suitable opportunity for discussion on the important subject of air comfort. It was for this reason that the experience and opinions of the lecturer would be most valuable.

Air-Commodore Weir first expressed his diffidence of tackling the subject when approached by the Chairman, but he found that his assent had been taken for granted and so he had had no option or choice. He thought, as a result of his recent flight in the "Hercules," that the most important factor in the desire for air comfort was security. That was the finest component of the many issues that would make flying popular. He had found from a study of passengers that they all regarded the sense of security as the primary need for their ease when flying. Factors in the issue varied according to the passengers. There were certain main points. The most significant of all was the question of "bumps." These, he thought, provided the worst element that civil aviation had to cope with; and the trouble was that, up to now, they had been taken for granted as inevitable, as acts of God, as it were, for which there was no remedy. But he did not agree with that. He thought it most worth while to make a research into the problem, to tackle it as an aeronautical question to be dealt with by ourselves. He did not see why it should be impossible to find an altitude or an air route over any air lines where the minimum of "bumps" existed. Passengers were confirmed air travellers after flying in lovely weather, but after a bumpy trip they were flying's greatest enemies. The next important point to consider was the power unit. In aircraft with a single engine there always existed at the back of one's mind engine failure. They could not rid themselves of that subconscious fear, and it therefore intruded on their sense of security. Those who had flown over the sea would appreciate that feeling. With two engines the fear was mitigated to some extent, perhaps, but not totally by any means. It was not the ideal anyhow. Now with three engines, where one was virtually a standby, the worry was largely removed. The multi-engine necessity was forced on us by the fact that we had not the engine units of sufficient power to do the job required. The cardinal principle in future aircraft design was duplication of the power unit. In ships, he said, duplication of the power was an essential qualification before a ship was allowed to proceed to sea; and this should be the same with aeroplanes. The reaction on engine design to-day was that engines became scrapped very quickly because a higher powered engine immediately superseded them. He thought that in the future designers should select the number of units required for their particular machines.

The next important question on comfort in the air was the size of machine. Space was very impressive and conducive to the passenger's sense of security. The luxury of the limousine should be of the highest class, but it was not the end of the development. Airships gave passengers their great feeling of safety because of the mere fact that it was possible to walk about them. That sense of freedom from confined space made all the difference. He hoped that it would be possible to give some similar freedom in aeroplanes. Perhaps there could be a promenade deck on the top of the fuselage. Its mere presence there, although it might not be used by the passenger, would none the less reassure him to some extent. He would feel that he was not restricted and hemmed in. The size of machines, then, would go a long way towards the comfort of the traffic.

Then we came to noise. The lecturer said that he appreciated the enormous difficulties that arose in this problem. A mere silencer on the engine was no good. A lot of money would undoubtedly have to be spent on research, but he was afraid that the elimination of noise as far as possible was essential. He referred to the great improvements made in this respect on the railways. He travelled, he said, from Glasgow to London every week, and he noted that the regular travellers always chose the modern railway car, whereas the casual travellers made no particular choice. That was because the regular passengers knew from experience of the obvious improvements in the springing, smooth running, and minimum of noise of the new cars, and they would have

no other—which showed that the public preferred comfort in their travelling.

Air-Commodore Weir then made comments on the small owner-pilot machines and their comfort. First, with regard to seating capacity. He, personally, thought that the tandem arrangement was not nearly so comfortable as the side-by-side seats such as those of the Blackburn "Blue Bird" light 'plane. This method made flying more sociable. It was possible to hold hands, for instance, which was rather nice! Another improvement would be if the engine was not in front of the fuselage. He remembered the pleasure of flying in the early Farmans, with their front open nacelle and the engine at the back. There was no slipstream, no oil fumes sweeping on you, and the view was perfect. There was a tiny Caproni machine with these advantages, he remembered.

He then made mention of minor points in the "Hercules" machine in which he recently flew to Cairo. First, it was the finest machine he had ever flown in, but he did not like the petrol pump being positioned in the fuselage. From the word "Go" they all knew it was there. He understood, however, that it was but temporarily in that position and that in the Hercules MK. II it would be removed. He thought that the particular design of chairs was not a success. They were like dentists' chairs with their head-rests. The other passengers did not like them either. He did not suggest the head-rests should go, but they wanted improving.

The Commodore next referred to night flying, of which, he said, he had had but little experience. Capt. Hinchliffe beat their machine on the way out and they landed two hours after dark. In the future he thought there would be more night flying, and it was therefore of fundamental importance to have every comfort, so that passengers could sleep peacefully.

The Discussion

The Chairman then rose and said that it was fortunate so many representatives of the military and civil side of aviation were present, as their opinions on the suggestions advanced by Air-Commodore Weir would be most helpful. Sir John Higgins had mentioned that he would be glad of any ideas on the subject.

Col. Bristow thought the whole question at the bottom of safety and comfort in air travel was money, he said. Inevitably the industry had their eye on profit and loss. They could not do otherwise. The use of three engines was a very serious thing from a financial point of view, for it meant carrying as much as 50 per cent. power in reserve. At this stage of progress he thought that the Government must decide whether they must compel Imperial Airways to run on a hard and fast system of profit and loss, as the primary policy, or whether they should regard safety first. The industry could not possibly incorporate all these factors of safety and comfort today and survive. The Government must decide the issue. They must advance more money if they wanted safety. On the question of silence in engines, if we insisted on that it would only be possible to create it at a loss both financially and in power. You got away from efficiency. There were various ways of accomplishing silence, including an ungearing propeller, reducing the compression load, and taking all wiring out of the slipstream. He did not quite see the predominant disadvantages about bumps. It was a matter that rested with the pilot largely, and he thought the Imperial Airways pilots were the finest pilots in the world. They had done more for aviation than anyone. And those early pilots who took off from Cricklewood with a fully-loaded machine deserved the D.S.O.

Mr. Handley Page: "Why?"

The trouble about chairs, said Col. Bristow, was that the designers of them never sat in one long enough. He referred to a certain chair which was all right to sit in for a short time, but when someone sat in it once and read a paper for half an hour he was so stiff on rising that he had to be helped across the floor.

Various enquiries: "What was the paper?"

The solution, said Col. Bristow, of the whole problem of comfort lay in more generous treatment by the Government.

Maj. Mayo said that he placed bumps in the air in the same category as roughness at sea, and they should be regarded in the same way. During the last hundred years had there been any improvements in ships to overcome roughness at sea? There was none, neither in design nor navigation. We had got to face bumps naturally as we faced rough seas. He did not agree, therefore, with finding smooth running paths in the air. The only remedy for bumps would lie in larger machines. These would give more comfort. They would increase in proportion to the increase of passenger traffic. He agreed that security outweighed all other considerations. It would bring more traffic which, in turn, would be followed by larger machines. He, too, referred to the analogy of the ship. A 50,000-ton liner was far more comfortable to sail in than a smaller ship. Sea sickness in them was rare. The reliability of the large aeroplane was greater. He did not see why in time we should not have any number of engines. The more there were the greater the reliability. With 30 engines, for example, one could face a failure in flight of 20 per cent. Three engines, he said, did not provide the utmost security and efficiency. If one failed it represented a loss in power of 33½ per cent. The "Hercules" machine was highly efficient. It had been designed successfully for adaptation to varying climatic conditions, particularly where the temperature was high and the density low, as prevailed where it recently flew to. It could face the contingency of the failure of one engine, but not all three-engined machines could do so. With a maximum load they could just hold their height when one-third of the power was cut out, but they had no reserve for climbing. Further advancement in the multi-engine stage would bring easy riding and reliability. He was not altogether agreed with some opinions expressed on the trouble of noise. He thought that 75 per cent. could be attributed to the propeller

The exhaust noise was negligible. One improvement would be slow-revolving, low-g geared propellers instead of the small, swift propellers. The petrol pump in the "Hercules" fuselage, incidentally, was only temporarily positioned there, and would be altogether deleted in future types. On the matter of chairs he found no agreement whatever. Male passengers had approved of headrests and females had not. It crushed their hats. He would like suggestions from Air-Commodore Weir. A chair in which one could sleep comfortably was a necessity.

Mr. Handley Page thought it was a fine thing when different bodies interested in aviation could all gather like this. It was a movement that wanted developing. They would have to try and convert some people with money in order to obtain a larger building for these discussions. Of the various points in connection with air comfort he thought that noise was the chief trouble, but he did not agree that it was largely composed of propeller noise. Noise was not essentially because propellers were geared. Money was very necessary to make research into the whole problem, and then inevitably the trouble would be put right. To some extent the remedy lay in further refinement of mechanical engineering. He thought the long exhaust pipes leading far behind the cabins was not the cause of most noise. They were quite satisfactory. The comfort of seating depended on more room. Designers were too narrow in their consideration of a passenger's requirements; 6 ft. by 3 ft. by 2 ft. was not enough. We wanted air to breathe and that relied on space. Bumps were eliminated, he thought, with big machines. He recalled a big machine, completed at the end of the war, which was going to make a flight to Berlin. It was so steady in the air that the pilot actually left his cockpit and walked amongst the passengers, much to their alarm. There was a widespread idea prevailing, largely through the great cry of the press, that the size of machines and metal construction were going to solve all aeronautical problems. They were erroneously regarded as the only two paths to progress. It was totally wrong. He did wish the press would not emphasise this so much. With a greater number of engines there was inevitably greater chance of partial breakdown, so that we wanted some limit to the number used. Reliability was the next important issue. Every aeroplane should be under perfect controllability at any speed and when stalled. That was the chief factor towards achieving reliability. He thought that night flying should be encouraged, and that the future of aviation would depend on the success of night flying. It saved time. He found that to run over to Paris in the day more or less wasted that day, whereas to go at night left one the whole day clear.

Professor Low thanked the Chairman for the opportunity of speaking, and pointed out that as he had done no long-distance flying he could regard himself purely as one of the public, and therefore express their opinion perhaps. He realised that finance was at the root of most of the necessities for air comfort. He had found that in open cockpits the conditions were much more comfortable than in enclosed cabins. He had emerged from a cabin dirty, deafened and sick; and the same from a sporting car. But, apart from the uncomfortable conditions in aircraft travel and their reaction on passengers, there was the psychological aspect to be considered. Noise was not necessarily objectionable. Noise could be unobtrusive. If noise came as people expected it to come it did not affect them. If it came with an unexpected nature it did affect them. With three engines the noise was unpleasant because it varied. A steady rhythm was not at all objectionable. He thought that speed would add considerably to comfort. It would cause a machine to ride bumps. We ought to make a study of jerks. If we got a jerk which rose one, say, $\frac{1}{4}$ in. in a length of travel of $\frac{1}{4}$ in., it was obviously uncomfortable, but if we rose $\frac{1}{4}$ in. in a length of, say, 100 ft. that would not be too bad. We ought to differentiate between the noise that was pleasant

and that which was not. Large machines would solve the problem to a great extent.

Mr. North said that we must not expect too much from large machines. He thought that engines had passed their economic size.

Mr. Chorlton said he could not speak with much experience of aircraft, but he thought the noise in duralumin machines was not so bad as was suggested. A quieter engine would mean that the power output in relation to weight would be lower. He did not like the long exhaust pipe ranging down the whole length of the fuselage. It caused intermittent throbbing. But the whole trouble would be solved eventually by turbines. He did not see that the expense of making research into the noise trouble was worth while to-day with the flights averaging only three hours' duration. He thought that damping devices, so largely adopted by the railways, should be tried. Engine mountings were not coupled to the fuselages except by hard and fast bolts and nuts. With regard to bumps he thought that a higher wing loading would help to overcome them.

Captain Leverton said that as it was understood that people were sick so much in the air the problem then arose how and where are they to be sick? Accommodation for the purpose was totally inadequate. Look at the comfort for being sick given you on ships. There was required a long rail to stagger along by and more room at the tail, instead of one miserable place that could only contain one wretched being. Many things conducted towards upsetting people. For instance, when cabin walls moved it was not exactly reassuring, particularly when they moved on their own altogether.

Air Vice-Marshal Sir Vyell Vyvyan said that passengers liked three-engined machines, but the trouble was in filling such large liners. For the sake of economy it was necessary in winter, anyhow, to have single engines. The position on Imperial Airways now was that they could run to a profit in summer (with the subsidy, of course), but not in winter. The number of passengers was going up and the expenses going down. He thought that airships would cut out aeroplanes on long-distance routes, but there would be more scope for aeroplanes by serving auxiliary lines to the airship lines. He emphasised the fact that they would make Imperial Airways pay so long as they had the subsidy, but it must not decrease gradually, as it was doing, and it must certainly not stop altogether.

Major Brackley said that they were helping pilots to find the smoothest passages by meteorological study communicated by wireless. They could not seek the calmer high altitudes owing to the petrol capacity. Perhaps there would be a lighter fuel one day.

Mr. Grey thought that bumps were solely remedied by the pilots. Captain de Havilland said that the silencing of the cabins by insulation should be considered rather than silencing the engines.

Captain Tymms said that the Air Ministry had made investigations into materials suitable for insulation purposes, and had found that hair felt, generally considered as the best insulation material, was no good whatever. These investigations and results were at the disposal of anyone.

Colonel O'Gorman, summing up the evening's discussion, praised the astuteness shown by the different speakers on the subject. He agreed with them all that security was the dominating question to be considered. He thought that the psychological aspect was very important. It was exceedingly necessary, failing any improvement in the present troubles, to distract the passengers' attention. Keep them amused and interested. Space, that is, large machines, would help to do that. He knew from personal experience that the general freedom on airships was the sole reason that gave passengers more comfort in them. Pilots would not fly out of sight of land with less than three engines. Altitude was one solution for avoiding bumps.

The Royal Air Force Memorial Fund

THE usual meeting of the Grants Sub-Committee of the Fund was held at Idlesleigh House on February 3. Lieut.-Commander H. E. Perrin was in the Chair, and the other members of the committee present were:—Mrs. L. M. K. Pratt-Barlow, O.B.E., Squadron-Leader Douglas Iron, O.B.E. The Committee considered in all 9 cases, and made grants to the amount of £40. The next meeting was fixed for February 24, at 2.30 p.m.

Imperial Airways Items

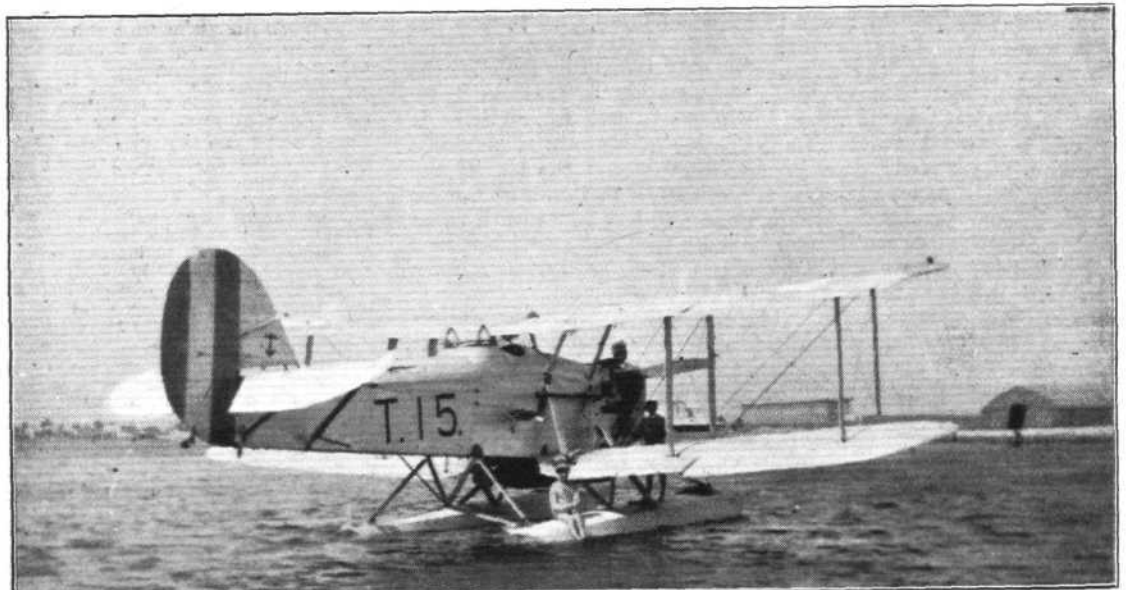
IMPERIAL Airways, Ltd., are issuing books of Airways tickets at reduced rates—a book of 10 tickets costing the

price of nine. A new service for business men between Croydon and Ostend will be inaugurated during the Ostend season.

One of the Imperial Airways pilots, Capt. R. H. McIntosh, has just completed eight years of continuous flying between London and Paris, having carried some 8,000 passengers during that period!

Another I.A.L. pilot, Capt. W. G. R. Hinchliffe, accomplished a flight, on February 4, carrying press photographs, from Cherbourg to London—a distance of 150 miles—in 76 mins. He was flying a land machine, and steered a direct compass course.

Blackburns in Greece: Our photograph shows one of the five Blackburn "Velos" seaplanes recently tested by Major H. S. Travers, D.S.C., before delivery to the Greek Government. It is the production of the National Aircraft Factory near Athens, organised by the Blackburn Aeroplane Co., and is a development of the Blackburn "Dart" and "Swift" machines, being a 2-seater torpedo-carrying seaplane, fitted with a Napier "Lion."



IMPERIAL AIRSHIP BASES

It will be remembered that a couple of years ago the Director of Civil Aviation, Flight-Lieut. S. Nixon, O.B.E., and other experts, visited India in order to survey possible airship bases. Karachi was selected as the most suitable site for immediate purposes, and in consequence a shed and mooring mast are now in course of erection there. While the mission was in India, possible bases at Bombay, Calcutta, Rangoon, and Colombo were also surveyed. The Indian Air Board, in a recent report to the Government, has regretted that the expense of the Karachi base was not undertaken by India, and has recommended the acquisition of that base as soon as funds are available, has asserted that a mast is essential at Bombay as well, and has urged that the site at Calcutta should be acquired by the Government.

Meantime, the Imperial Conference was very deeply impressed by the programme of air routes laid before it by Sir Samuel Hoare, and the Premiers of Canada and South Africa forthwith assented to his suggestion that the Dominions should each erect an airship mast. These two Dominions also formally requested that missions of experts should be sent to advise them in selecting suitable bases. Australia also intimated that if a mission visited the Commonwealth it would be welcomed and its advice would be appreciated.

A programme for the first of these missions has now been drawn up; though the dates given must be considered as probable and approximate rather than accurate. The mission consists of Group-Captain P. F. M. Fellowes, D.S.O., A.D.C., Director of Airship Development; Flight-Lieut. S. Nixon, O.B.E.; and Mr. M. A. Giblett, M.Sc., Superintendent of Airship Meteorology. This mission is to deal with Africa and Australia.

Flight-Lieut. Nixon has already started on ahead, and is proceeding down the West Coast of Africa. He is in particular visiting and surveying Bathurst in Gambia, and Freetown in Sierra Leone. Expert information about these two ports is certainly desirable, even though it may not be put to immediate use. Not only is it as well to consider whether an airship route to the Union of South Africa would find its best course down the west or the east coast of Africa, but if a service to the West Indies and British Guiana were ever

undertaken the "jumping-off place" would presumably be in either Gambia or Sierra Leone. When he has spent sufficient time in this little-known quarter of the British Empire, Flight-Lieut. Nixon will move on to South Africa, and will engage in preliminary discussions with the Union authorities. In April he will start again up the east coast to Mombassa, and will consider the possibilities of Kenya from the airship point of view. Then he will return once more to the south and should meet Group-Captain Fellowes and Mr. Giblett at Capetown on May 23. The united mission will doubtless find its path smoothed and its work expedited by the preliminary survey of the advance officer, and probably by the first week in June the Union officials will be able to arrive at some definite decision.

On June 10 the mission will sail from Durban and arrive at Perth on June 26. From four to six weeks will be spent in Australia. One can imagine that while there the mission, which by then will be primed with some knowledge of African conditions, will discuss the major point of whether the airship route to Australia shall run via Karachi or via Durban. In the memorandum drawn up by the Air Ministry for the benefit of the Imperial Conference, both these routes were mentioned, and the time for the Indian route to Australia was given as 11 days; that of the African route as 10½. It is known that south of direct line from Durban to Perth there is a steady current of eastward-blowing winds; while to the north of that line there are trade winds blowing in the opposite direction. These winds would be an immense help to airship navigation. On a decision between these routes depends the location of the Australian mooring mast. If one accepts the dictum that it is the business of an airship to reach the nearest and most convenient point of a country, and that distribution throughout that country is the function of the aeroplane, then the selection of the Indian route might imply a terminus at Darwin, while the African route would certainly entail a base at Perth. The mission will return home in August via Colombo and Bombay. Probably another mission will visit Canada in May, but the details have not yet been settled.

F. A. DE V. R.



L.Z. 127 for Atlantic Service ?

It seems likely that the first air service across the South Atlantic will be inaugurated by the new German airship, the L.Z. 127 now being constructed at Friedrichschafen. The proposed route is from Seville to Buenos Ayres and will probably commence next year if the Spanish aerodrome is completed. The ship is well advanced in erection, the frame being up. Work is proceeding slowly, however, as certain improvements are being embodied which have been developed since the last Zeppelin crossed the Atlantic under Dr. Eckener. A new fuel, in the form of a gas, which is at the moment a secret, is being substituted for benzine for the motors. Experiments have proved that this gas does not cause overheating in the motors and is so light that the loading capacity of the ships is correspondingly greatly increased. Certain new navigation instruments too, are to be fitted that are apparently the object of much interest on the technical side. We have already referred in *FLIGHT* to this new ship, giving more detail. The passenger accommodation will be luxurious for the four days' flight, the intention being to achieve the comfort of a liner's cabins.

Aircraft in the Great War to be Filmed ?

THE Air Ministry are considering the creation of a film of great historical significance depicting air battles at high altitudes. Obsolete aircraft that fought in the early days of the war will take part in the reconstruction of those first aerial combats. It will be the aim to reveal realistic impressions of the beauty of aerial tactics. For the creating of this film, special cockpits on the wings of giant 'planes will be made to house observers with the cameras, and from these prominent positions they will be able to get close-up views of the manoeuvres. The control of the aeroplane to reveal man's mastery of the air will be filmed, and it is intended the cinema audience shall be made to gasp, as machines rush straight at them very swiftly, threatening to overwhelm them. Other photographers will be established on the tops of high wooden towers.

Beetles at the Air Ministry !

It is suggested that new ideas for wing folding for aircraft may be gathered from the study of a macratoma beetle found off the West Coast of Africa, which folds its broad, square wings in an ingenious way. Specimens are being sent to the Air Ministry with this object in view, by Mr. Alexander Barns, the explorer, who has just returned from an expedition



[*"FLIGHT"* Photograph

BECOMING "AIR-MINDED" : Mrs. Bell, wife of Squadron-Leader J. R. Bell, Assistant Liaison Officer of the Royal Australian Air Force at the Air Ministry, is undergoing a course of flying lessons at the de Havilland School. Mrs. Bell is here seen with her instructor, Capt. R. W. Reeve, before going up for a "lesson."

LIGHT 'PLANE CLUB DOINGS

London Aeroplane Club

Flying Time.—The total flying time for the week ending February 6 was 51 hrs. 25 mins.

Flying Instruction.—The following Members had flying instruction :—C. H. Swan, E. R. Wilson, A. F. Wallace, N. H. M. Watkins, G. Saxon Mills, F. W. Martino, E. J. B. King, H. D. Guggenheim, Mrs. Christie, L. W. Gibbens, J. G. Crammond, C. R. Campkin, D. H. P. Esler, J. J. Hofer, H. J. Greenland, R. P. Cooper, D. S. Hewitt, H. Spooner, Lady Bailey, A. J. Richardson, M. P. Susman, Miss O'Brien, E. A. Lingard, T. E. Rose Richards, F. C. Elford, G. N. Howe, E. D. Moss, R. Malcolm, H. Solomon, Dr. Cook, Mrs. Cook, L. C. Davey.

Solo Flying.—The following Members flew solo :—N. Jones, L. J. C. Mitchell, E. E. Stammers, O. J. Tapper, G. H. Craig, S. O. Bradshaw, K. V. Wright, C. E. Murrell, A. R. Ogston, H. Solomon, A. F. Wallace, Miss O'Brien, D. H. P. Esler, R. Malcolm, E. S. Brough, B. Roxburgh Smith, Lady Bailey, H. Spooner, W. Hay.

Passenger Flights.—The following Members were given passenger flights :—J. H. Saffery, R. Drysdale Smith, A. Mines, Miss Irene Frank, E. K. Rayson, L. W. Gibbens, E. D. Evans, J. J. Hofer.

Pilot Instructors.—During the week the flying instruction was carried out by Capt. F. G. M. Sparks, Flying Officer R. W. Reeve, Capt. A. S. White, and Capt. C. D. Barnard.

Committee.—The Hon. Lady Bailey and N. Jones have been elected to the Committee of the Club.

"Bristol" Brownie.—The Directors of the Bristol Aeroplane Co., Ltd., Bristol, have offered to place a "Bristol" Brownie with "Bristol" Cherub Series III engine at the disposal of the Club free of charge. The Committee at its meeting last week unanimously decided to accept this offer, and a letter conveying the warmest thanks of the Club was forwarded to the Directors of the Bristol Aeroplane Co. The "Bristol" Brownie is a single seater, and will be delivered to Stag Lane very shortly.

The Club has nearly 50 members holding licences and with only two machines available for soloists, the flying time per member has had to be restricted. The generous and practical help given to the Club by the Bristol Aeroplane Company will be greatly appreciated.

January Flying.—The month of January was bad from a flying point of view. The total flying time was 83 hrs. 10 mins., as follows :—**Dual Training** : 110 flights, 49 hrs. 45 mins.; **Solo Training** : 6 flights, 1 hr. 15 mins.; **Solo Flying** : 53 flights, 17 hrs. 40 mins.; **Test Flying** : 45 flights, 7 hr. 30 mins.; **Passenger Flying** : 20 flights, 7 hrs. **Grand total**, 234 flights, 83 hrs. 10 mins. During the month 82 individual Members were in the air.

The Hampshire Aeroplane Club

REPORT for week ending February 4.—Total flying time, 11 hrs. 36 mins. Instruction flying, 6 hrs. 40 mins. Passenger flying, 40 mins. Solo flying, 3 hrs. 35 mins. Test flights, 40 mins.

The following members had instruction :—Lieut. A. R. Cadell, R.N., 2 hrs. 45 mins.; Mrs. C. B. Fry, 1 hr. 40 mins.; Mr. E. P. Snowden, 1 hr. 30 mins.; Senor de la Cierva, 40 mins.; Mr. L. J. C. Mitchell, 5 mins. The soloists were :—Senor de la Cierva, 2 hrs. 5 mins.; Mr. L. J. C. Mitchell, 35 mins.; Mr. R. H. Cooper, 20 mins.; Mr. S. Fry, 10 mins.; Mr. A. M. Keeping, 10 mins.; Captain F. T. Courtney, 10 mins.; and Mr. K. P. L. Bowen, 5 mins.

The following members had joy rides :—Mrs. Fellowes, Mrs. Miller, Mr. W. D. Cox, and the Rev. C. H. Blofield, all with Captain Thomson; Mr. Fanshawe, piloted by Mr. Mitchell; and Senor de la Cierva with Capt. Courtney.

The Establishment Fund, which was inaugurated at the Club's first Annual Dinner in December last, has now reached a total of over £600, and an order has been placed with a contractor to commence the alterations to and decoration of the clubhouse.

Having read the report of the Lancashire Aero Club in last week's issue, we are very sorry to learn that they are in such a bad way, and trust that their Propaganda Sub-committee (if any) will be able to do something about it. Of course, we now understand why our attempt to borrow that telescope and half-crown was null and void.

Lancashire Aero Club

REPORT for week ending February 5.—Total flying time for the week, 17 hrs. 45 mins., made up as follows :—

Dual with Mr. Brown :—Messrs. Nelson, 1 hr. 30 mins.; Gatterall, 1 hr. 20 mins.; Costa, 1 hr.; Miss Emery, 50 mins.; Miss Brown, 40 mins.; Messrs. Benson, 35 mins.; Dickinson, 35 mins.; Abdalla, 30 mins.; Caldecott

Musgrave and Forshaw, 25 mins. each; Slater, 20 mins.; Meads and Wade, 15 mins. each; Wood, 10 mins.

Solo :—Messrs. Twemlow, 1 hr. 45 mins.; Costa, 45 mins.; Gatterall, 35 mins.; Lacayo, 25 mins.; Leeming, 20 mins.; Dobson, 10 mins.

Joy-rides :—With Mr. Brown—Mr. Caldecott, 1 hr. 40 mins.; Mr. Evans, 15 mins. With Mr. Costa—Mr. Vianio, 15 mins. With Mr. Cantrill—Mr. P. Gatterall, 10 mins.

Test flights :—2 hrs. 10 mins.

Speaking from memory and judging from the state of one's car it rained incessantly during the week. One gathers from the flying hours, however, that there must have been clear intervals or else that some of this characteristic Yorkshire grit must have drifted across the border.

This week's soloist is Mr. Gatterall, a popular member who did sterling work as transport officer in connection with the club's flying displays. One is very glad to see him join the ranks of the soloists.

Returning from Chester on the Alpha-Gosport, Mr. Leeming ran out of petrol. With characteristic Lancashire foresight he did so within gliding distance of a road-side petrol station, so that all he had to do was to land in an adjoining field, fill up direct from the pump, and continue his journey. Leeming has been putting in most of his time on this machine lately which, in that it does not help to increase our flying hours, is unfortunate from the club's point of view. No one, however, will find it in his heart to blame him for this, as the Avro Alpha-Gosport gives one the impression of being rather a wizard kite in her own class and probably most of us, given the opportunity, would be doing the same thing.

The Midland Aero Club, Limited

REPORT for week ending February 2.—The total flying time was 9 hrs. 3 mins.

The following members were given dual instruction by Capt. McDonough : F. Coxhill, C. Fellowes, S. H. Smith.

Secondary dual : A. B. Gibbons. The following made solo flights : A. M. Glover, R. L. Jackson, E. J. Brighton.

Passengers with Mr. Brighton : L. V. Mann, V. M. Parsons; with A. M. Glover : Miss Ratcliffe.

Members are reminded that the Annual General Meeting of the Club is to be held on Thursday, February 17, 1927, at the Queen's Hotel, Birmingham, at 19.45 hrs.

Newcastle-upon-Tyne Aero Club

REPORT for week ending February 6.—Total flying time, 30 hrs. 35 mins. L.N., 16 hrs. 40 mins., L.Y., 12 hrs. 5 mins., Avro 1 hr. 50 mins.

Dual with Mr. Parkinson, 9 hrs. 15 mins.; solo (training), 9, "A" pilots, 9 hrs. 20 mins., passenger flights, 1 hr. 10 mins.

The following members flew under instruction :—Sir Joseph Reed, Messrs. Welch, Turnbull, Wardill, Bainbridge, Wilson, Rasmussen, Twine.

Solo practice, Messrs. Mathews, Stewart, Turnbull, Bainbridge, Bell and Miss Leathart.

"A" Pilots.—Mr. F. H. Phillips with Mr. and Mrs. Sykes, Mr. H. Ellis with Mr. Heppell and Mr. Wood, Dr. Dixon, Mr. J. D. Irving with Messrs. J. Ball, Percy, Thirlwell, Miles A. Bell. Mr. C. Thompson with Mrs. Heslop. Mr. R. N. Thompson with Miss Edwards and Mr. Turnbull.

On the Avro.—Mr. P. F. Heppell. Mr. Baxter Ellis with Mr. Davey, Mr. Flinn, Mr. Robson and Mr. Crabb, Mrs. and Master Cooper. Mr. J. D. Parkinson with Mr. MacDonald, Mr. Phinney and Mr. Miesegae.

A new record for one day's flying was created on Sunday, the 6th, when 13 hrs. 30 mins. flying was carried out. The best previous day being during last summer, 11 hrs. 15 mins.

Mr. Turnbull and Mr. Bainbridge were both "launched" on Sunday and both carried out solo flying afterwards. Mr. A. Bell passed the practical tests for his licence on Wednesday.

The Yorkshire Aeroplane Club.

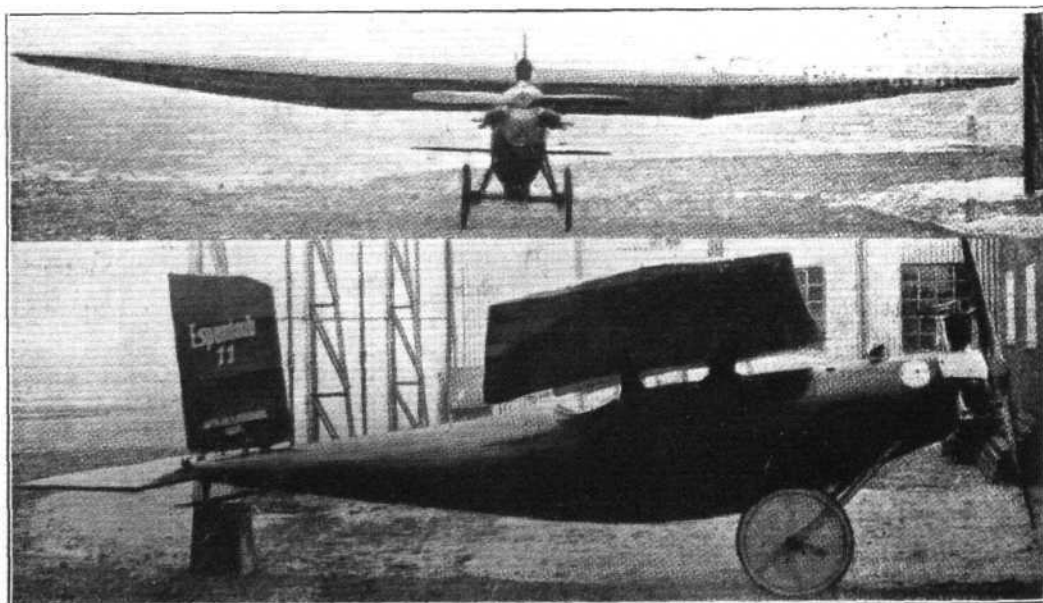
REPORT for the week ending February 4.—The total time for the week was the same as for last (4½ hrs.) made up as follows :—Solo : 1 hr. 20 mins.; joyrides, 1 hr. 40 mins.; dual, 1 hr. 5 mins.; and tests, 10 mins. Messrs. Batcock, Mann and Swift flew dual, and Lax and Mann went solo. There were 11 flights in all.

On Friday afternoon, Mr. Fielden, with the Rev. Shuffrey again as his passenger, set off for Scarborough where they landed on Oliver's Mount after about 45 mins. A stay of a few minutes was spent here before they commenced the return flight to Sherburn, which was reached at 5.20 p.m.

Earlier in the same afternoon the Air Ministry sent their representative, Colonel Outram, down to inspect the club, and he appeared to be satisfied that everything was O.K.

A £200 Light 'Plane?

From Germany it is reported that the Espenlaub Works of Cassel intend to put on the market the small light 'plane shown herewith. The machine is fitted with a 35 h.p. Anzani engine, and rumour has it that the price is not to exceed 4,000 Marks. How this is to be attained is not quite clear. It is stated that the machine has been tested in "aerobatic" flying. The main dimensions, &c., of the Espenlaub 11 are :—Wing span, 10 metres (32.8 ft.); length, o.a., 5 m. (16.4 ft.); wing area, 14 sq. m. (151 sq. ft.). Weight of machine, empty, 280 kg. (616 lb.). Climb to 1,000 m. (3,280 ft.) in 6 minutes.



THE ROYAL AIR FORCE

London Gazette, February 1, 1927.

General Duties Branch

Ronald Harry Griffith is granted a short service commn. as a Pilot Officer on probation with effect from and with seniority of Jan. 24. The following are granted short service commns. as Pilot Officers for four years on active list, with effect from and with seniority of Jan. 17 :—J. G. Foreman, G. Selk, L. C. L. Murray, E. H. Irving, F. Townsend, A. A. Koch, and C. H. A. Colman. The following Pilot Officers are promoted to the rank of Flying Officer :—William George Wainwright Fahey (Nov. 30, 1926); Ronald Christopher Wilson, Charles Henry Godwin Brembridge (Jan. 30).

Flying Officer Howard John Thomas Saint, D.S.O., is transferred to Reserve, Class A (Feb. 1). Flying Officer Alison Wenley Daly is transferred to Reserve, Class A (Dec. 9, 1926). (Substituted for Gazette, Dec. 7, 1926).

Pilot Officer Verney Tennison Norwood resigns his short service commission (Feb. 2). The short service commission of Pilot Officer on probation Stanley Charles Bell is terminated on cessation of duty (Feb. 2).

Accountant Branch
Pilot Officer on probation Robert Cassels is confirmed in rank and is promoted to rank of Flying Officer (Dec. 7, 1926).

Medical Branch
Flight Lt. George Ross Nodwell, M.B., is transferred to Reserve, Class D.1 (Jan. 29). Flying Officer Vivian Paul Ellis (Tempy, Lt., General List, Army Dental Surgeon), relinquishes his temp. commission on completion of service (Jan. 8). (Substituted for Gazette, Jan. 14.)

Reserve of Air Force Officers.
The following Flying Officers relinquish their commissions on completion of service :—Frank Joseph Magee (Oct. 24, 1926); Arthur Knox, William Beresford Mortimore (Jan. 30).

AUXILIARY AIR FORCE

General Duties Branch
The undermentioned to be Pilot Officer :—No. 603 CITY OF EDINBURGH (Bombing) Squadron :—A. R. H. Miller (Feb. 1).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified :—

General Duties Branch

Wing Commander : F. L. Robinson, D.S.O., M.C., D.F.C., to H.Q., Iraq, for Personnel Staff duties; 24.1.27.

Squadron Leaders : I. T. Lloyd, to No. 480 Flight, Calshot; 7.2.27. A. S. C. S. Maclaren, O.B.E., M.C., D.F.C., A.F.C., to R.A.F. Depot, Uxbridge, on transfer to Home Estab.; 18.12.26. A. H. Peck, D.S.O., to M.C., to No. 6 Armoured Car Co., Iraq; 14.1.27. W. S. Caster, M.C., R.A.F. Depot, Egypt; 19.1.27.

Flight-Lieuts. : E. H. Bryant, to R.A.F. Base, Gosport; 24.1.27. J. Duncan, to Home Aircraft Depot, Henlow; 21.1.27. H. G. Rowe, to No. 207 Sqdn., Eastchurch; 24.1.27. S. L. G. Pope, D.F.C., to No. 22 Sqdn., Martlesham Heath; 1.2.27. J. H. Winch, to No. 2 Flying Training Sch., Digby; 18.1.27. J. G. S. Candy, D.F.C., to R.A.F. Depot, Egypt; 2.1.27. W. A. Duncan, to H.Q., Egypt; 2.1.27. N. S. Paynter, to No. 20 Sqdn., India; 1.1.27.

Flight Lieuts. : H. H. Down, A.F.C., to R.A.F. Base, Calshot; 28.1.27. D. Colyer, D.F.C., to H.Q., Egypt; 10.1.27. J. A. G. Haslam, M.C., D.F.C., to No. 13 Sqdn., Andover; 9.2.27. L. R. Briggs, to R.A.F. Base, Gosport; 8.1.27. W. E. G. Mann, D.F.C., to No. 6 Sqdn., Iraq; 17.1.27. D. S. Allan, to R.A.F. Training Base, Leuchars; 14.1.27.

Flying Officers : E. H. Godfrey, to Armament and Gunnery Sch., Eastchurch; 1.10.26. E. V. S. Lacey, to No. 22 Sqdn., Martlesham Heath; 1.2.27. J. Rodger, D.S.M., to R.A.F. Depot, Egypt; 14.1.27. H. Stafford, to No. 216 Sqdn., Egypt; 2.1.27. G. C. Shepherd, to H.Q., Egypt; 13.1.27. H. Thomas, to R.A.F. Depot, Egypt; 12.1.27. L. E. Goodman, to Aircraft Park, India; 24.1.27. H. S. Hobby, M.C., to R.A.F. Depot, Uxbridge, on transfer to Home Estab.; 24.12.26. N. A. P. Pritchett, to R.A.F. Station, Tangmere; 1.2.27. E. Addis, to Record Office, Ruislip; 20.1.27. J. H. Barringer, to No. 60 Sqdn., India; 24.1.27.

Flying Officers : J. E. W. Bowles, to R.A.F. Training Base, Leuchars; 17.1.27. J. N. D. Anderson and W. H. O. Rumbit, to R.A.F. Training Base, Leuchars; 10.1.27. H. A. M. Weir, to R.A.F. Training Base, Leuchars; 24.1.27. L. H. Stewart, to R.A.F. Training Base, Leuchars; 5.2.27. M. F. Morris, to No. 1 Sch. of Tech. Training (Apprentices), Halton; 13.1.27. N. T. Goodwin, to Record Office, Ruislip; 1.2.27. E. A. H. Fisher, to H.M.S. "Argus"; 26.1.27. R. B. Harnden, to R.A.F. Depot, Egypt; 16.1.27. M. W. J. Boxall, to No. 30 Sqdn., Iraq; 18.1.27. M. A. Platts

and H. Thomas, to No. 216 Sqdn., Egypt; 16.1.27. R. H. Barlow, to remain at No. 9 Sqdn., Manston, instead of to R.A.F. Training Base, Leuchars, as previously notified. V. J. Sofano, to H.Q., Transjordan and Palestine; 12.1.27. W. J. Kelly, to No. 9 Sqdn., Manston; 17.1.27. A. L. MacMillan, to Armament and Gunnery Sch., Eastchurch; 15.2.27.

Pilot Officers : W. M. C. Kennedy, to No. 1 Flying Training Sch., Netheravon; 17.1.27. W. L. Bateman and P. S. Cook, to No. 100 Sqdn., Spittlegate; 14.12.26. C. H. L. Evans and C. G. Lucas, to No. 16 Sqdn., Old Sarum; 14.12.26. S. H. C. Gray, to No. 13 Sqdn., Andover; 14.12.26. J. F. Griffiths, to No. 2 Flying Training Sch., Digby; 16.1.27. G. A. G. Johnson, to No. 2 Flying Training Sch., Digby, on appointment to a Short Service Commn.; 15.1.27. R. H. Griffith, to No. 2 Flying Training Sch., Digby, on appointment to a Short Service Commn.; 24.1.27.

Pilot Officers : E. B. Steedman, to R.A.F. Depot, Uxbridge, instead of to No. 1 Flying Training Sch., as previously notified; 4.1.27. J. E. A. Binnie, to R.A.F. Base, Calshot, on transfer to Home Estab.; 17.2.27. L. S. T. Brown, to No. 11 Sqdn., Netheravon, on transfer to Home Estab.; 17.2.27. W. E. W. Grieve, to R.A.F. Depot, Uxbridge, on transfer to Home Estab.; 8.1.27. H. E. Milton, to No. 29 Sqdn., Duxford, on transfer to Home Estab.; 17.2.27. A. W. H. Nelson, to No. 16 Sqdn., Old Sarum, on transfer to Home Estab.; 17.2.27.

Accountant Branch

Flight-Lieut. : E. V. Humphrey, to H.Q., Egypt; 14.1.27.
Flying Officers : J. J. Caiger, to No. 208 Sqdn., Egypt; 2.1.27. R. W. Freeman, to No. 14 Sqdn., Palestine; 12.1.27. R. W. Collinson, to No. 4 Flying Training Sch., Egypt; 2.1.27.

NAVAL APPOINTMENTS

The following appointments have been made by the Admiralty :—
Lieuts. R.N. (Flying Officer, R.A.F.) : G. T. Campbell, to *Furious*, and for full flying duties in 462 Flight; 14.1.27. J. W. M. Healing, N. R. Courthope-Munroe, A. N. R. Keene and J. W. Hawkins, to *Tamar* and for 442 Flight; 24.1.27. J. H. I. Wood, to *Tamar* for 443 Flight; T. O. Bulteel, A. M. Pilling and J. F. M. Robertson, to *Tamar* for 401 Flight; 24.1.27. E. O. F. Price, to *Eagle* and for full flying duties in 441 Flight; 11.1.27.
Comms. : G. R. S. Watkins, D.S.O., and H. C. Legge, D.S.C., to *President*, addl., to be lent to R.A.F. for course; 24.1.27.

AIR MINISTRY NOTICES

Italy : Rome (Centocelle) Aerodrome

It is hereby notified :—
1. The Rome (Centocelle) aerodrome is not available for use at night, as lighting facilities have not yet been provided. The information published in A.P.M.S.23, page 14, should be annotated accordingly.

Hollows in the surface of this aerodrome are being filled in; in wet weather these places become soft and treacherous and great care should be exercised when landing.

No. 4 of 1927.

Obstructions at Aerodromes

It is notified :—
1. **Martlesham Heath.**—Visiting pilots should take great care when landing, as heather is now being cut at this aerodrome. This work is expected to continue for at least six months.

2. **Manston.**—The obstruction lights on the W/T Masts at this station are temporarily out of action. Care should be taken when flying in the vicinity at night.

3. **Tangmere.**—Levelling operations have been completed. There are several furrows on the aerodrome that have been filled in with brown rubble and appear from the air to be ridges. They are, however, quite safe and aircraft may land on them.

No. 5 of 1927.

Royal Air Force Flying Accidents

THE Air Ministry regrets to announce that as the result of a collision in the air off Benghisa Point, Malta, on February 1, between a Fairey Flycatcher machine of No. 402 Flight, and a Fairey 3.D. machine of No. 441 Flight, John Yarranton Mills, Lieutenant, Royal Navy, Flying Officer, Royal Air Force, the pilot and sole occupant of the Fairey Flycatcher aircraft, was killed. Flying Officer Alexander Harold James Howlett, the pilot of the Fairey 3.D. aircraft was uninjured, and his passengers, Wing Commander Gilbert George Herbert Cooke, D.F.C., A.F.C., and No. 61875, Flight-Sergeant

Vacancies for Apprentice Clerks. Royal Air Force

THE Air Ministry announces :—Sixty vacancies exist in the Royal Air Force for well-educated boys, between the ages of 15½ and 17, to enter as Apprentice Clerks. Approximately 40 of the posts will be filled by means of an open competition which will be held by the Civil Service Commissioners in April at various centres, and the remaining 20 by direct entry of boys who have obtained an approved school certificate. Successful candidates will be required to complete a period of 12 years' regular Air Force service after reaching the age of 18, in addition to the training period. At the age of 30 they may return to civil life or may be permitted to re-engage to complete time for pension. Detailed information regarding the apprentice clerk scheme can be obtained from the Royal Air Force, Gwydyr House, Whitehall, London, S.W.1. Boys entered under this scheme undergo a two years' course of training in clerical duties, typewriting, shorthand, book-keeping and practical office routine, during which time their general education is continued under a staff of graduate teachers. The apprentice clerks are paid 7s. per week for the first year and 10s. 6d. per week afterwards until they have both attained the age of 18 and have been posted for duty after passing their final examination. The subsequent commencing rates of pay, varying from 21s. to 31s. 6d. per week, depend upon the degree of success achieved at this examination. In addition, they receive free board and lodging. An opportunity will be given to apprentice clerks to volunteer for training as airman pilots. Selection to the number of about 60 annually is made from volunteers of all trades. A few airman pilots are periodically selected for commissioned rank.

Arthur Edmond Laurence Worster, sustained only slight injuries.

As the result of an accident at Upavon to a Woodcock aeroplane of No. 3 Squadron, on February 2, Pilot Officer Gomer Flower Lewis, the pilot and sole occupant of the aircraft, was killed.

The Air Ministry regrets to announce that, as the result of an accident at Rottingdean, Sussex, to a Grebe aeroplane of No. 56 Squadron, Biggin Hill, on February 4, Pilot Officer Sidney Arthur Vernon Evans, the pilot and sole occupant of the aircraft, was killed.

CORRESPONDENCE

[The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.]

A DISCLAIMER

[2150] In November last a report was published in the press* of a trial and sentence at the Central Criminal Court of a prisoner for converting to his own use a sum of £3,000 entrusted to him for certain purposes by Major Innes. Most of the reports referred to the fact that the Jury added to their verdict of "Guilty" a rider to the effect that in their opinion we, Majors Innes and McMahon, were deserving of censure. Many, but not all of the reports, added that the Recorder, before whom the case was tried, stated that he abstained from expressing either approval or disapproval of the rider. The prisoner's appeal having been dismissed by the Court of Criminal Appeal on January 24, we think that in view of our names having been mentioned in the reports, we are entitled to publish an explanation.

The prosecution was conducted by the Director of Public Prosecutions, and we were concerned in it only in the capacity of witnesses called by Counsel for the prosecution. As witnesses we were not entitled to be represented by Counsel, or to offer any explanations except such as consisted of answers given by us to questions put to us by Counsel for the prosecution and defence. In adding the rider referred to, therefore, the Jury censured us without hearing our case.

The Jury stated no reason for their rider, but we presume that it was based upon certain comments of Counsel for the defence as to our holding directorships of limited companies in which persons connected with the aircraft industry were also directors. Such comments had no direct relation to the issue being tried, and were made with a view to prejudicing the Jury. We are of opinion that the Jury did not realise that we were not established civil servants, but were temporarily employed, subject to short notice, and that we had the permission of the Ministry to be directors of the companies referred to.

In view of the Jury's rider, we immediately suspended our attendance at the Ministry's offices and subsequently submitted our resignations, which were accepted by letter from the Secretary of the Air Ministry, of which the following is an extract:—

"The Council, while accepting your resignation, do not fail to recognise the good service you have given since your transfer to the Air Ministry and, more especially, the assistance you have rendered while the Directorate of Contracts has been under reorganization.

"In view of the publicity which was recently given to certain imputations on your conduct, I am to add that the Council, having examined the matters at issue, are of opinion that they afford no ground for impugning your probity or honour; and in order to avoid misunderstanding they are so informing the principal officials of the department."

In view of the publicity given to the Jury's rider, we beg to request that you will give publicity to this statement.

A. INNES
F. R. McMAHON

February 4, 1927.

* Not in FLIGHT.—Ed.

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New Fire Extinguisher

A DEMONSTRATION was given recently at Farnborough at the request of the Air Ministry of a new device for quelling outbreaks of fire in record time. It is a small cylinder weighing about 1 lb., and filled with a liquid at a temperature below freezing point, and this is forced out in the form of liquid gas by inverting the cylinder and pressing, which causes a vacuum. In its present development the cylinder cannot cope with large outbreaks like the flare of a burst petrol tank, but the remedy only appears to be that of making a bigger cylinder. An outbreak in an aero engine carburettor was quelled in eight seconds, but it could not overcome the flames from a carburettor holding a pint. In tests on motor-cars petrol was poured over the engine, a lighted match applied and the instant flare was extinguished in eight seconds, too. The "Stop Fire," as the invention is called, is in general use amongst motorists in France, and it is being demonstrated in this country by Mr. Lionel H. Dolaro, 40, Shaftesbury Avenue, London.

Royal Aeronautical Society Notices



Design of Commercial Aircraft.—On February 17, at 6.30 p.m., at the Royal Society of Arts, 18, John Street, Adelphi, W.C.2, Major R. H. Mayo, O.B.E., will deliver an important lecture on "The Design of Commercial Aircraft." His lecture will be divided into two broad divisions, as follows:—(1) Regular air transport on scheduled routes; (2) General air service.

Under (1) Major Mayo will point out the dominating importance of safety, give an analysis of factors affecting safety and reliability, recent progress in regard to reliability of power plant and installations, detailed design and structural strength and fire prevention.

There will be a review of design features as affecting operating costs, metal and wood construction, replacements, &c., and comfort of passengers.

Under (2) the design point of view of aeroplanes will be considered in four main groups:—(a) Air survey and exploration; (b) Taxi flying; (c) Transport of plant and machinery; (d) Club and private flying.

There will be a summing up of the factors regarding development of commercial aviation, the fundamental causes of accidents, aerodynamic and weather risks, &c.

J. LAURENCE PRITCHARD, Secretary.

Gloster Aircraft Company's Annual Dinner

THE early part of a year is noteworthy for the Annual Dinners that take place in connection with our firms, and perhaps one of the most interesting and successful was that organised by the Engineering Department of the Gloster Aircraft Company, and held in Cheltenham Town Hall, on Saturday, January 29.

The Departmental Manager, Mr. Gordon Charley, presided over a large gathering and was supported by a representative body of all sections of the works. The toast of the King was followed by one to "The Gloster Aircraft Company" proposed by Mr. Charley. This gave Mr. David Longden, managing director of the company, the opportunity of replying and stating the forward policy of the firm. The speech was one of optimism and a reiteration of the ideals of the firm to give the highest quality production. With news to hand that the Schneider Trophy would be competed for this year, Mr. Longden assured the gathering that a Gloster machine would take part in the race, and if it did not win, he felt sure it would not be for the lack of enthusiasm and concerted effort of all Gloster employees. Reference was made to the four experimental machines the firm had made during the past year, at their own cost and risk, and to their production of a new deck-landing machine which had been very successful, also a bombing machine and a two-seater reconnaissance machine. This last year has seen their further development of metal aircraft, even to the production of metal propellers. Excellent results were now assured with the Gloster Hele-Shaw variable pitch propeller.

Mr. Longden concluded with a reference to the tireless qualities and unswerving efforts of the Chief Engineer and Designer (Mr. H. P. Folland) and toasted his health in cordial terms. The toast of the Engineering Department was afterwards proposed by Mr. Folland and responded to by Mr. Charley.

An enjoyable entertainment followed with the "Froth Blowers' Anthem" as the grand finale.

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NEW COMPANY REGISTERED

ARTEX, LTD. Capital £500, in 1s. shares.—Manufacturers, contractors or agents for the erection, supply and maintenance of steel and other garages, hangars, aerodromes, etc. First directors, W. Copland and A. Hoyle (manager), 205, Ladbroke Grove, W.10.

✻ ✻ ✻ ✻

PUBLICATIONS RECEIVED

Illustrated Calendar. 1927. Rohrbach Metall-Flugzeugbau G.m.b.H., 203, Friedrichstrasse, Berlin, S.W. 68.

Pictorial Calendar, 1927—"Westminster, London." The Dunlop Rubber Co., Ltd.

Motor Cycling Manual. Temple Press, Ltd., 7-15, Rosebery Avenue, London, E.C.1. Price 2s. 6d. net.

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AERONAUTICAL PATENT SPECIFICATIONS

(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

APPLIED FOR IN 1925

Published February 10, 1927

29,631. J. DE LA CIERVA. Aircraft with rotative wings. (264,286.)

APPLIED FOR IN 1926

Published February 10, 1927

30,890. J. KREITMAYER. Aerial screw propellers. (264,440.)

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